User's Manual

CITIZEN

DOT MATRIX PRINTER

MODEL iDP3410

Japan CBM Corporation

Declaration of Conformity

Manufacturer's Name : Japan CBM Corporation
Manufacturer's Address : CBM Bldg.,5-68-10, Nakano, Nakano-ku, Tokyo 164-0001, Japan

Declare the Product

Product Name : Dot Matrix Printer
Model Number (s) : iDP3410
(iDP3410R/P, iDP3410S/C, iDP3410T/I)
(S.NO.98X0001 -)

Conform to the following Standards

LVD :	EN60950	: 1992+A1+A2+A3+A4
EMC :	EN55022	: 1994 Class A
	EN61000-3-2	: 1995
	EN61000-3-3	: 1995
	EN50082-1	: 1992
	IEC801-2	: 1991 4KV CD, 8KV AD
	IEC801-3	: 1984 3V/m, 26MHz-1000MHz AM1KHz 80%
	IEC801-4	: 1988 0.5KV Signal Line ± 1KV AC mains

Supplementary Information
"The product complies with the requirements of the Low Voltage Directive 73/23/EEC, 93/68/EEC and the EMC Directive 89/336/EEC, 92/31/EEC, 93/68/EEC"

Place : Tokyo, Japan

Date : September1995

Signature: 

Full Name : Mikio Moriya
Position : General Manager
R & D Department

Europe Contact :
Norco Declaration AB
Box 7146 S-250 07 Helsingborg, Sweden

WARNING
This is a Class A products. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

ATTENTION
Ce produit de class A. Dans environement domestique, il peut causer des interférences radio. Auquel cas, l'utilisateur sera amené à prendre les mesures adéquates.

Warnung
Dies ist ein Klasse A Produkt. In einer örtlichen Umgebung kann dieses Gerät Funkstörungen verusachen.

Atención
Este es un producto de la clase A. En ambientes domésticos éste producto puede causar radio Interferencias en cuyo caso el usuario deberá tomar las medldas oportunas.

VERWITTIGING
Dit is een klasse A produkt. Het gebruik hiervan kan radio interferenties veroorzaken die de gebruiker ertoe kunnen dwingen sommige maatregelen te moeten treffen.

* THE ABOVE MENTIONED DECLARATION IS APPLIED ONLY FOR 230V MODEL.

IMPORTANT SAFETY INSTRUCTIONS

- Read all of these instructions and save them for future reference.
- Follow all warnings and instructions marked on the product.
- Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this product near water.
- Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.
- Slots and openings on the back or bottom of the case are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, do not block or cover these openings. The openings should never be blocked by placing the product on a bed, sofa, rug of other similar surface. This product should never be placed near or over a radiator or heater. This product should not be placed in an built-in installation unless proper ventilation is provided.
- This product should be operated from the type of power source indicated on the marking label. If you re not sure of the type of power available, consult your dealer or local power company.
- Do not allow anything to rest on the power cord. Do not place this product where the cord will be walked on.
- If an extension cord is used with this product, make sure that the total of the ampere ratings of the products plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
- Except as explained elsewhere in this manual, do not attempt to service this product by yourself. Opening and removing the covers that are marked “Do Not Remove” may expose you to dangerous voltage points or other risks. Refer all servicing on those compartments to service personnel.
- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 A. When the power cord or plug is damaged or frayed.
 B. If liquid has been spilled into the product.
 C. If the product has been exposed to rain or water.
 D. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered be the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
 E. If the product has been dropped or the cabinet has been damaged.
 F. If the product exhibits a distinct change in performance, indicating a need for service.
- Please keep the poly bag which this equipment is packed in away from children or throw it away to prevent children from putting it on. Putting it on may cause suffocation.

WICHTIGE SICHERHEITSANWEISUNGEN

- Lesen Sie die nachfolgenden Anweisungen sorgfältig durch und bewahren Sie sie auf.
- Befolgen Sie alle auf dem Drucker vermerkten Hinweise und Anweisungen. Vor dem Reinigen grundsätzlich Stecker aus der Steckdose ziehen. Keine Flüssigkeiten oder Aerosolreiniger benutzen. Nut mit einem feuchten Tuch abwischen.
- Der Drucker darf nicht in der Nähe von Wasser aufgestellt werden.
- Drucker nicht auf einem unstabilen Wagen, Stand oder Tisch aufstellen. Der Drucker könnte herunterfallen und dabel beschädigt werden.
- Schlitze und Öffnungen im Gehäuse, in der Rückwand und im Boden dienen der Belüftung. Sie dürfen keinesfalls zugedeckt oder blockiert werden, da sich der Drucker sonst überhitzt. Drucker nicht auf ein Bett, Sofa, Teppich oder dergleichen stellen. Drucker nicht in der Nähe eines Heizkörpers aufstellen. Drucker darf nicht eingebaut werden, falls nicht für ausreichende Belüftung gesorgt ist.
- Drucker nur mit der auf dem Typschild angegebenen Spannung betreiben. Wenn Sie sich nicht sicher sind, fragen Sie ihren Händler oder ihr zuständiges Elektrizitätswerk.
- Nichts auf das Stromanschlußkabel stellen. Kabel muß so verlegt werden, daß man nicht darauftreten kann.
- Ein etwaiges Verlängerungskabel muß der Stromstärke aller daran angeschlossenen Geräte entsprechen.
- Keine Gegenstände in die Gehäuseschlitze schieben.
- Drucker darf nur da gewartet werden, wo im Handbuch angegeben, Öffnen und. Abnehmen von Abdeckungen, die mit “Do not remove” gekennzeichenet sind, könnte gefährliche spannungführende Stellen oder sonstige Gefahrenpunkte freilegen. Die Wartung solcher Stellen darf grundsätzlich nur von besonders ausgebildetem Fachpersonal vorgenommen werden.
 A. Wenn das Stromanschlußkabel oder der Stecker beschädigt oder durch-gescheuert ist.
 B. Wenn Flüssigkeit auf dem Drucker verschüttet wurde.
 C. Wenn der Drucker im Regen gestanden hat oder Wasser darauf verschüttet wurde.
 D. Wenn der Drucker trotz genauer Befolgung der Betriebsvorschriften nicht richtig arbeitet. Nur die in der Bedienungsanleitung angegebenen Einstellungen vornehmen. Ein Verstellen anderer Bedienungselemente könnte den Drucker beschädigen und macht umständliche Arbeiten eines qualifizierten Technikers erforderlich, um den Drucker Wieder auf den normalen Betrieb einzustellen.
 E. Wenn der Drucker heruntergefallen ist oder das Gehäuse beschädigt wurde.
 F. Wenn der Drucker in seiner Leistung nachläßt.
- Bitte halten Sie den Kunststoffbeutel, in den die Ware verpackt ist, von Kindern entfernt, oder werfen Sie ihn weg, damit er nicht in die Hande von Kindern gerät. Das Überstülpen des Beutels kann zum Ersticken führen.

Lärmemission kleiner 70dBA

IMPORTANT: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 off FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

CAUTION: Use shielded cable for this equipment.

Sicherheitshinweis
Die Steckdose zum Anschluß dieses Druckers muß nahe dem Grät angebracht und leicht zugänglich sein.

For Uses in Canada
This digital apparatus does not exceed the class A limits for radio noise emissions from digital, apparatus, as set out in the radio interference regulations of the Canadian department of communications.

Pour L'utilisateurs Canadiens
Cet appareil numérique ne dépasse pas les limites de carégorie a pour les émissions de bruit radio émanant d'appareils numériques, tel que prévu dans les réglements sur l'interférence radio du départment Canadien des communications.

<CAUTIONS>

1. Prior to using the equipment, be sure to read this User's Manual thoroughly. Please keep it handy for reference whenever it may be needed.
2. The information contained herein may be changed without prior notice.
3. Reproduction of part or all of this User's Manual without permission is strictly prohibited.
4. Never service, disassemble, or repair parts that are not mentioned in this User's Manual.
5. Note that we will not be responsible for damages attributable to a user's incorrect operation/ handling or an improper operating environment.
6. Operate the equipment only as described in this User's Manual; otherwise accidents or problems may result.
7. Data are basically temporary; they cannot be stored or saved permanently or for a long time. Please note that we will not be responsible for damages or losses of profit resulting from losses of the data attributable to accidents, repairs, tests, and so on.
8. If you have any questions or notice any clerical errors or omissions regarding the information in this manual, please contact our office.
9. Please note that, notwithstanding Item 8 above, we will not be responsible for any effects resulting from operation of the equipment.

SAFETY PRECAUTIONS ----- BE SURE TO OBSERVE

In order to prevent hazards to an operator or other persons and damage to property, be sure to observe the following precautions.

- The following describes the degrees of hazard and damages that can occur if the given instructions are neglected or the equipment is incorrectly operated.

⚠ **WARNING**	Negligence of this precaution may result in death or serious injury.
⚠ **CAUTION**	Negligence of this precaution may result in injury or damage to property.

 This is an illustration mark used to alert your attention.

 This is an illustration mark used to indicate such information as an instruction or the like.

⚠ WARNING !

- Never handle the equipment in the following manners, as it may break, become out of order, or overheat causing smoke and resulting in fire or electric shock.
 If the equipment is used in an abnormal condition, such as when broken, then problems, smoke emission, abnormal odor/noise, and fire can result. If an abnormal condition exists, be sure to turn off the power, disconnect the power plug from a plug socket, and contact our dealer. Never repair the equipment on your own - it is very dangerous.
- Do not allow the equipment to receive a strong impact or shock, such as kicking, stomping, hitting, dropping, and the like.
- Install the equipment in a well-ventilated place. Do not use it in such a manner that its ventilation port will be blocked.
- Do not install the equipment in a place like a laboratory where chemical reactions are expected, or in a place where salt or gases are contained in the air.
- Do not connect/disconnect a power cord or a data cable, while holding the cable. Do not pull, install, use, or carry the equipment in such a manner that force will be applied to the cables.
- Do not drop or insert any foreign substances, such as clips or pins, into the equipment.
- Do not spill any liquid or spray any chemical-containing liquid over the equipment. If any liquid is spilled on it, turn off the power, disconnect the power cable and power cord from the plug socket, and so on, and contact our dealer.
- Do not disassemble or remodel the equipment. Negligence of this may cause fire or electric shock.
- Should you drop or break this AC adapter by any chance, unplug it immediately and contact our office. Using it in that condition may result in fire or electric shock.
- Should water enter inside the equipment by any chance, unplug it and contact our office. Using it in that condition may result in fire or electric shock.
- Use the equipment only with the specified commercial power supply. Negligence of this may result in fire, electric shock, or problems.
- Do not damage, break, process, bend/pull by force, twist, or bundle an AC adapter cord. Also, do not put a heavy substance on it or heat it. The AC adapter could be broken, resulting in fire, electric shock, or trouble. If the AC adapter cord is damaged, contact our office.
- Do not connect/disconnect the AC adapter with wet hands. It may result in electric shock or other problems.
- Do not overload a single electrical outlet, using a table tap or a current tap socket. It may result in fire or electric shock.
- An equipment packing bag must be discarded or kept away from children. A child can suffocate if the bag is placed over the head.

⚠ PRECAUTIONS FOR INSTALLATION

- Do not use or store the equipment in a place exposed to fire, moisture, or direct sunlight, or in a place near a heater or a thermal device where the prescribed operating temperature and humidity are not met, or in a place exposed to much oil, iron powder, or dust. The equipment may become out of order, emit smoke, or catch fire.
- Do not install the equipment in a place like a laboratory where chemical reactions are expected, or in a place where salt or gases are contained in the air. There is a danger of fire or electric shock.
- Do not put any object on the printer. It may cause trouble.
- Do not use the equipment near a radio or TV receiver. Do not share the power from a plug socket a radio or TV receiver is connected to. It may cause a reception problem.
- Use the equipment only at the specified voltage and frequency. Otherwise, it may emit smoke and catch fire or cause other problems.
- Confirm that a plug socket used for connection has sufficient capacity.
- Do not overload a single electrical outlet in connecting the power cable. It may result in the cable catching fire or a power outage. Also, do not stamp or put any object on the cable.
- Never connect a grounding cable to a gas pipe. There is a danger of explosion. When connecting or disconnecting the grounding cable, be sure to disconnect the power plug from the plug socket.
- When connecting/disconnecting the cables, be sure to turn off the power first, including the connected side, and then connect/disconnect them, holding a plug and a connector. Do not pull or carry the equipment with a load applied to the cable.
- Connect a connector cable securely. If a reverse-polarity connection is made, internal elements may be broken or a mating device may be adversely affected.
- Use a shielding wire or twisted pair wire for a signal line, in order to minimize noise effect. Avoid connecting to a device that is likely to generate noise.
- When a drawer kick connector is provided, do not connect any device other than the prescribed solenoid specifications. Negligence of this could cause trouble.
- Use the equipment in an environment where there is a plug socket near the main body and you can easily disconnect the power plug from it, to shut off the power.
- When the equipment will not be used for a long period of time, unplug it.
- When transporting the equipment, remove the rolled paper from it.
- Install the equipment on a flat, stable desk in a well-ventilated place free from vibrations. (Do not block the ventilation port.)

⚠ PRECAUTIONS FOR HANDLING

Do not handle the equipment in the following manners, because problems may result.

- Do not use a power supply other than the specified AC adapter.
- Do not print when there is no recording paper or ink ribbon set in the equipment. The print head may be damaged
- Be careful not to drop foreign substances, such as clips, pins, and screws, into the main body.
- Do not spill any liquid or spray any chemical-containing liquid over the equipment.
- Do not stamp on, drop, hit, or give a strong shock to the equipment.
- Never use a pointed object, such as a pen, to operate the operation panel.
- Do not use Scotch tape to fasten paper together for continuous use.
- Never pull the set paper forcibly. When opening/closing the printer cover, take care that the paper will not be caught.

To Prevent Injury and Spreading of Damage

- Do not touch the printing part of the print head.
- When turning on the power, do not touch the moving parts, such as a cutter and gear inside the main body, or electric parts.
- Be careful to avoid bodily injure or damaging other objects with an edge of sheet metal.
- Should any error occur while operating the equipment, stop it immediately and disconnect the power plug from the plug socket.
- Should a problem occur, leave solving it to our serviceman. Do not disassemble the equipment on your own.
- When opening/closing the cover, and so on, be careful not to catch your hand or finger on the equipment.

ⓘ DAILY MAINTENANCE

- Prior to starting maintenance work, be sure to turn off the main body.
- Use a dry soft cloth to wipe off stains and dust from the surfaces of the main body case. For severe soiling, dip the cloth in water and wring it, for wiping off the soil. Never use organic solvents, such as alcohol, thinner, trichlene, benzene, ketone, or chemical dusters.
- If the equipment is contaminated with paper powder, use a soft brush to clean it.

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Note:
CITIZEN, CITIZEN logo are registered trademark of CITIZEN WATCH CO., LTD.
ESC/POS and EPSON are a trademark and registered trademark of SEIKO EPSON Corporation.
STAR is a registered trademark of Star Micronics Corporation.
Windows is a registered trademark of Microsoft Corporation.

1. OUTLINE

This is a small-size dot impact printer developed for various data communication terminals, POS terminals, kitchen-use printers, bank card, terminals, and so on.
Its abundant built-in features allow you to widely use this printer for different applications. Prior to using it, read and understand this manual thoroughly.

1.1 Features

(1) Small size, light weight, and low price
(2) High-speed print (Bi-directional)
(3) Red and black print
(4) Very easy paper loading by the auto loading function
(5) Paper end detecting function
(6) Power supply through an AC adapter

1.2 Unpacking

(1) When unpacking the printer, confirm that the following parts are provided.

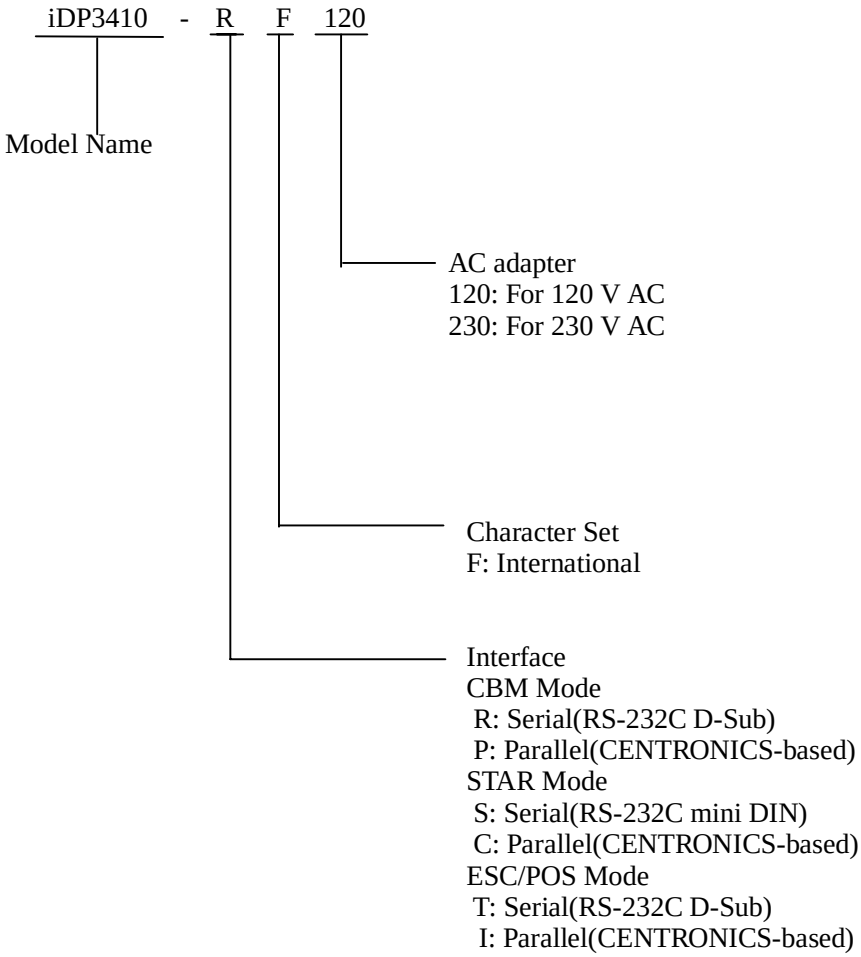
• Printer body	1 unit
• Cassette ribbon	1 piece
• Sample paper roll	1 roll
• AC adapter	1 piece
• User's manual	1 copy

⚠ **CAUTION** :
- Install the printer on a flat and stable desk.
- Do not install the printer near a heater or in a place exposed to direct sunlight.
- Do not use the printer in a high-temperature, high-humidity, and contaminated environment.
- Do not allow dew condensation on the printer. If dew is condensed on it, leave the power turned off until dew condensation is gone.

2. BASIC SPECIFICATIONS

2.1 Model Classification

The printer model is classified by the following designation method.



- ♦ Exclusive AC Adapter Types and Power Cords
 - 34AD-U (120 V 2-core cord)
 - 34AD-E (230 V 2-core cord)

2.2 Basic Specifications

Model / Item	iDP3410-*F120	iDP3410-*F230
Printer mechanism	DP-410 Series (CITIZEN)	
Print method	Serial dot impact method (Bi-directional print)	
Print width	64 mm	
Print head	9 pins	
Print speed	Approx. 3 lines/sec. (At single-color continuous print)	
Print columns	40 columns or 42 columns (Selectable with the DIP switch)	
Character size	1.31 mm (W)×3.1 mm (H)	
Character types	Alphanumeric, International characters, Code page 850, 860, 863, 865, 852, 866, 857; Windows code	
Line spacing	4.23 mm(1/6 inch) or 2.82(1/9 inch); Minimum paper feed pitch 1.41 mm(1/18 inch)	
Paper	Ordinary paper and non-carbon paper 76+/-0.5 mm (W)×ϕ83 mm (O.D.); Single-sheet paper: 45 to 55 kg/1,000 sheets/1,091×788 mm Copying paper: Non-carbon paper, 1 original + 1 copy, Total thickness 0.2 mm or less	
Ink ribbon	Special purpose ribbon cartridge, Red/black or single color(black)	
Interface	Serial (RS-232C), Parallel (CENTRONICS compliant)	
Command system	CBM mode, STAR mode, ESC/POS mode The user can select the mode with the DIP switches and preset jumpers.	
Print function	Provided by operating the on-line, self-test, hex dump print function power switches and FEED switch	
Input buffer	6 KB or 256 bytes (Selectable with the DIP switch)	
Buffer backup	Within 24 hours (After 10 minutes or more of printer operation)	
Drawer	2-drawer or 1-drawer switch	
Auto loading	Equipped (Automatically feeds the paper by several lines when it is inserted.)	
Paper end detection	Equipped (Stops printing when the paper runs out.)	
Supply voltage	120 V AC +/- 10 %, 50/60 Hz	230 V AC +/- 10 %, 50/60 Hz
AC adapter	34AD-U	34AD-E
	Output: 26 V DC, 1.15 A	
Power consumption	Not printing: Approx. 8 W Printing: Approx. 30 W	
Weight	Main body: 1.25 kg AC adapter: 0.95 kg	
Outer dimensions	144 (W) × 233 (D) × 121 (H) mm	
Operating temperature and humidity	0~40 °C, 35~85 % RH (No dew condensation)	
Storage temperature and humidity	-20~60°C, 10~90 % RH (No dew condensation)	
Reliability	Print head: 80,000,000 characters Mechanism: MCBF 2,500,000 lines	
EMI standard	FCCA	EN55022 Class-A CE Marking
Safety Standard *1		TUV GS

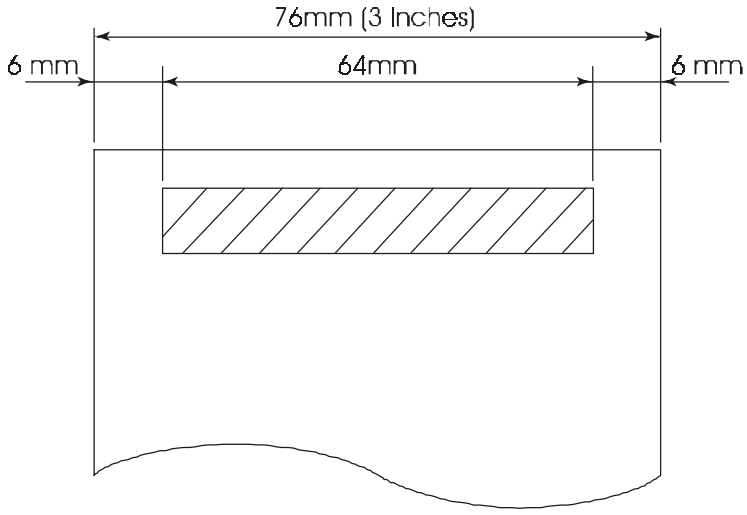
*1.The AC adapter alone has acquired the Electric Appliances Control Act, UL Standard, C-UL Standard, and TUV GS Standard.

2.3 Paper Specification

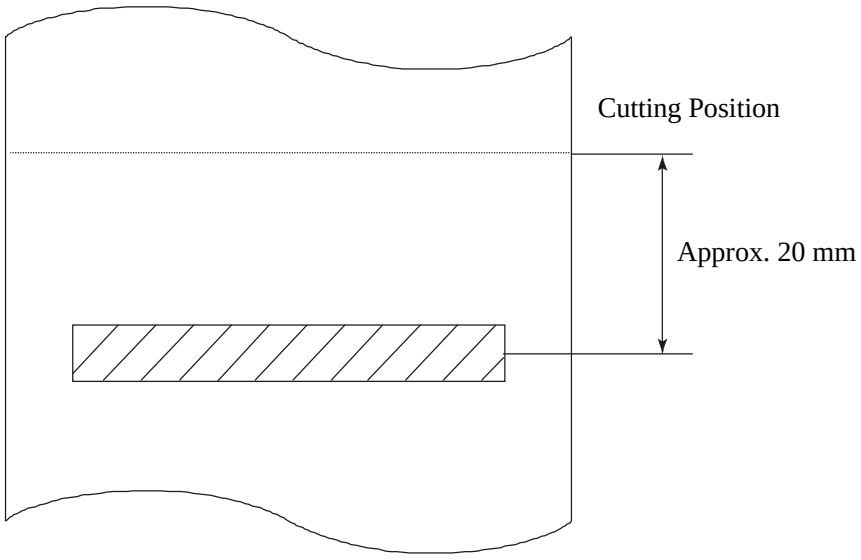
2.3.1 Recommended Paper

- Type : Normal paper and non-carbon paper
- Paper width : 76 +/- 0.5 mm
- Paper thickness : Single-sheet paper --- 45~55 kg / 1,000 sheets / 1,091 x 788 mm;
 Copying paper --- Non-carbon paper, 1 original + 1 copy,
 Total thickness 0.2 mm or less
- Roll diameter : ϕ83 mm or less
- Core : ϕ12 mm (Inner Diameter), ϕ18 mm (Outer Diameter)

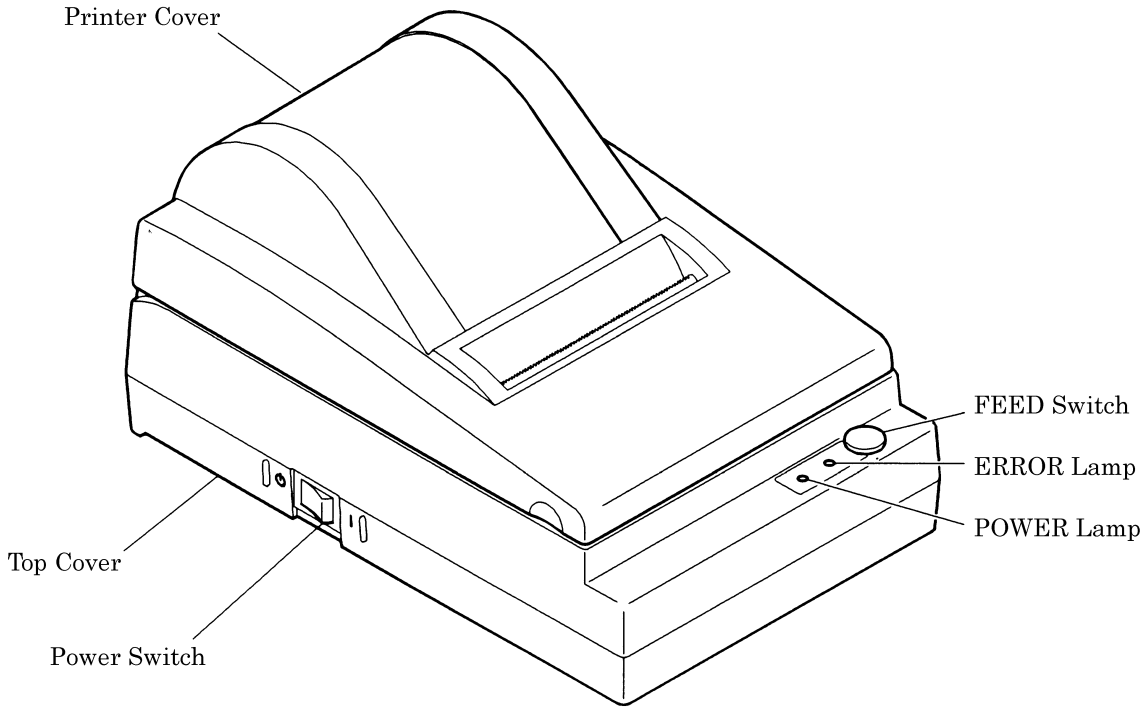
2.3.2 Printing Position

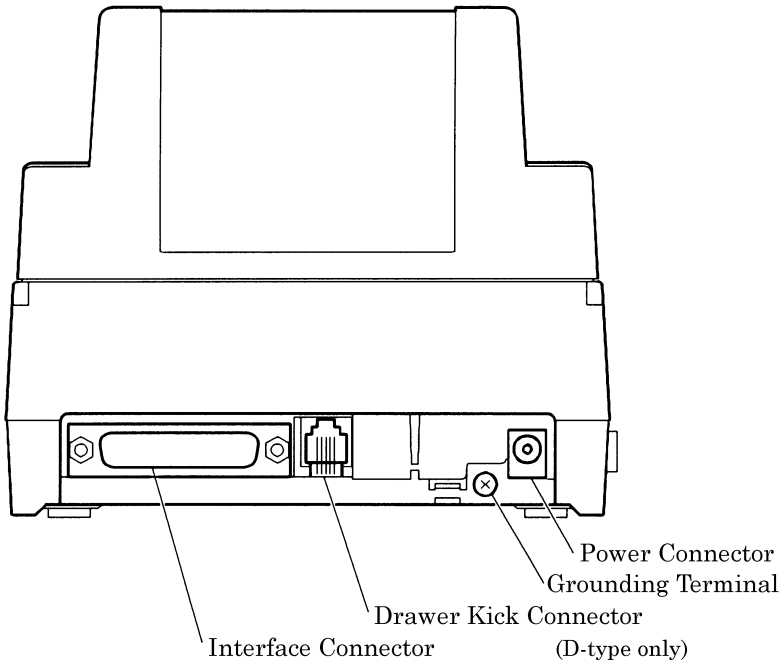


2.3.2 Cutter Layout



3. OUTER APPEARANCE AND COMPONENT PARTS





4. OPERATION

4.1 Connecting AC Adapter

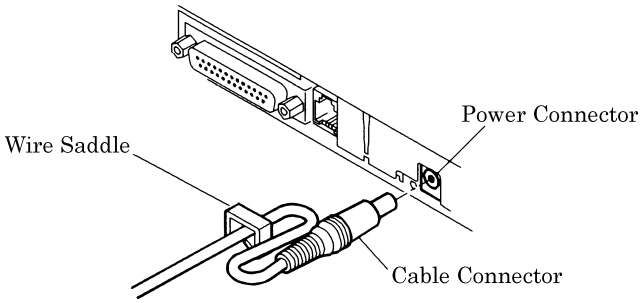
(1) Turn off the Power switch.

(2) Connect the cable connector of the AC adapter to the power connector located on the back of the printer.

(3) In order to prevent disconnection of the cable connector, put it through a wire saddle, as shown in the figure below.

(4) Connect the AC power cord plug to a plug socket.

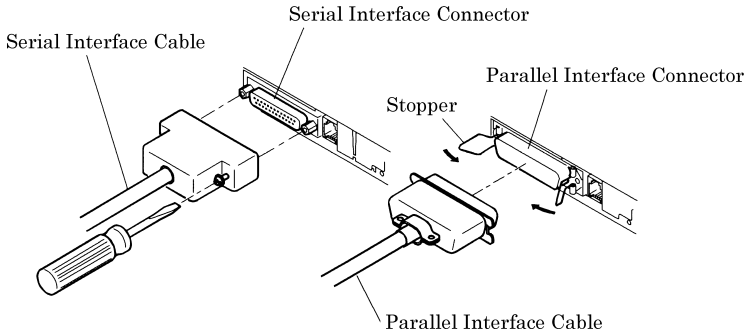
⚠CAUTION :
- Use only the specified AC adapter.
- Use a different AC power supply from one used for any noise-generating device.
- Do not use the accessory AC adapter for another device or application besides this equipment.
- When disconnecting the AC adapter, be sure to hold the AC adapter itself or the plug. Do not pull its cord.
- Pulling an AC adapter cord will damage it and may result in fire, electric shock, or snapping of the wire.
- If lightning is occurring in the area, disconnect the AC adapter from the plug socket and do not use the equipment. A lightning strike could result in fire or electric shock.
- Do not put the AC adapter cord near any thermal device. The coating of the power cord can melt, resulting in fire or electric shock.
- When the printer is not used for a long period of time, be sure to disconnect the AC adapter from the plug socket, for safety.



4.2 Connecting Interface Cable

(1) Turn off the power. (Mating side included)
(2) Check the top and bottom of the cable terminals, and connect to the interface connector.
(3) Fix the cable terminals.
- Serial Interface: Tighten screws, to fix.
- Parallel Interface: Turn a stopper, to fix.

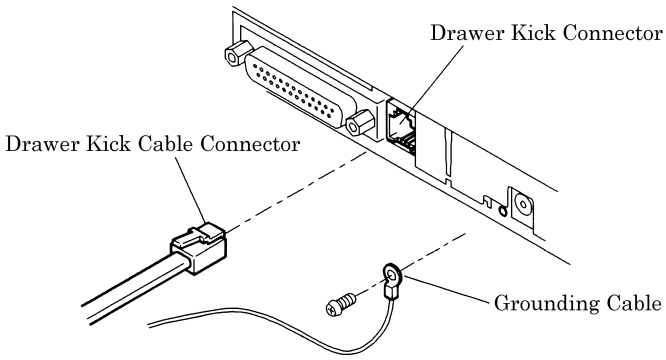
(4) Connect the cable to a computer.



4.3 Connecting Drawer Kick-Out Connector

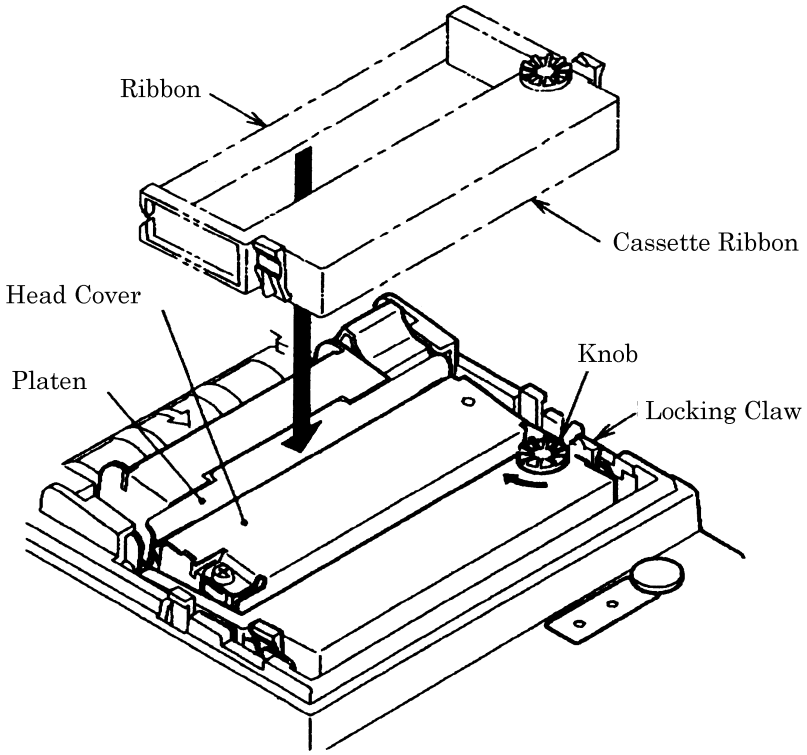
(1) Turn off the power.
(2) Check the top and bottom of the drawer kick-out cable connector, and connect it to the drawer kick-out connector located on the back of the printer.
(3) Screw the grounding cable of the drawer to the grounding terminal of the printer.

⚠ **CAUTION** : Connect only the prescribed drawer (Solenoid) to the drawer kick-out connector.



4.4 Setting the Cassette Ribbon

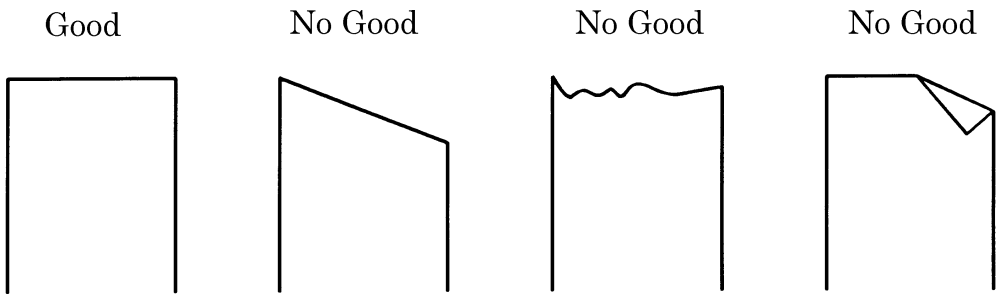
(1) Open the printer cover.
(2) If the ribbon is slackened, turn the knob in the arrow-indicated direction to give the tension to it before setting.
(3) While putting the ribbon in between the head cover and platen, push the locking claws into the holder of the printer.
(4) Turn the knob of the cassette ribbon in the arrow-indicated direction to eliminate slackness of the ribbon.
(5) To remove the cassette ribbon, lift it while tilting the locking claws on both sides toward the inside.



4.5 Inserting the Paper

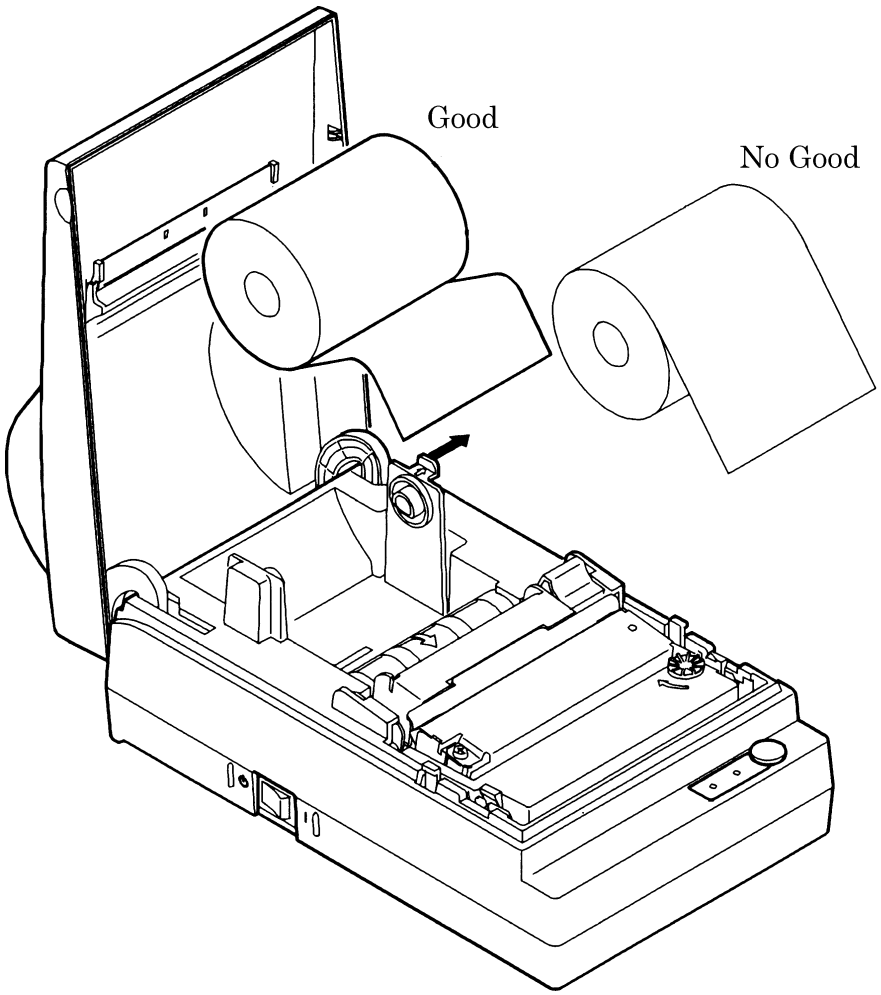
(1) Put your hands in the concave parts on both sides of the printer cover, and open it until it comes to a stop.
(2) Cut the end of the paper roll at close to a right angle.

⚠ **CAUTION** :
- Be sure to use the specified paper roll.
- Use of unspecified paper may adversely affect print quality, printer service life, and so on.
- The printer cover is not detachable. Do not apply an excessive force beyond its stopping position.
- Do not insert a frayed or bent end of paper into the printer.



(3) Check the winding direction of the paper roll.
(4) Opening the paper holder, support the center of the paper roll correctly.
(5) Turn on the printer.
(6) Insert the end of the paper roll straight into the paper inlet slot (Indicated by an arrow on the case).
(7) The paper is automatically fed in and comes out of the paper outlet slot of the printer.
(8) Close the printer cover and cut the surplus paper with a tear bar.

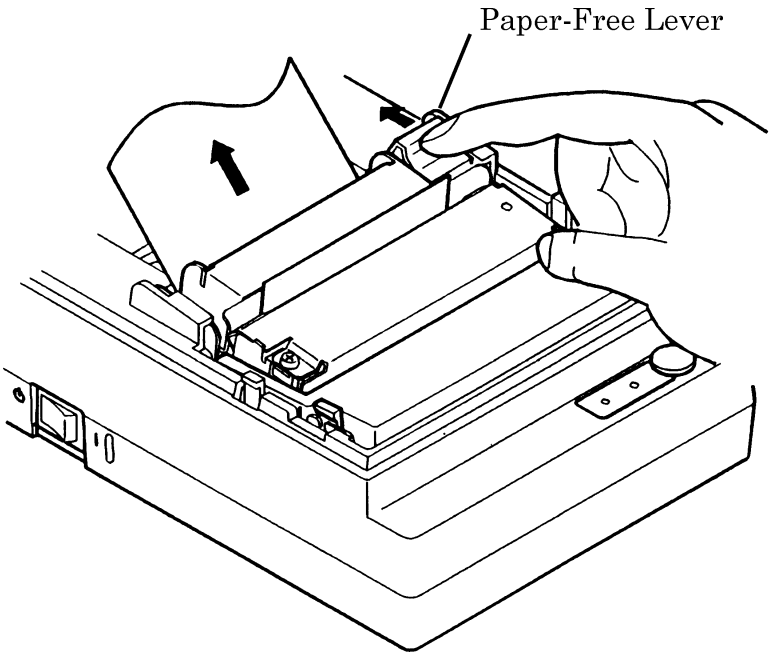
CAUTION :
- If the paper is slack, rewind it, to remove the slack.
- If the paper is set slantwise, operate the paper-free lever, to correct the paper position.
- While printing, do not hold the paper. This can cause a paper jam.



4.6 How to Remove Remaining Paper Roll

(1) Open the printer cover.
(2) Pushing the paper-free lever in the arrow direction, pull out the paper roll.

⚠**CAUTION** : When pulling out the paper (Forward/Reverse direction), be sure to operate the paper-free lever.



4.7 Removing Paper Jam

(1) Open the printer cover.
(2) Cut off the paper near the paper inlet slot.
(3) Push the paper-free lever in the arrow direction. The paper feed roller is disengaged, to free the paper, allowing you to eliminate the jammed paper.
(4) Eliminate completely the paper remaining in the paper route.

⚠**CAUTION** : • When pulling out the paper (Forward/Reverse direction), be sure to operate the paper-free lever.

4.8 Operation Panel and Display of Error

(1) POWER lamp(Green)
Illuminated when the power is turned on.

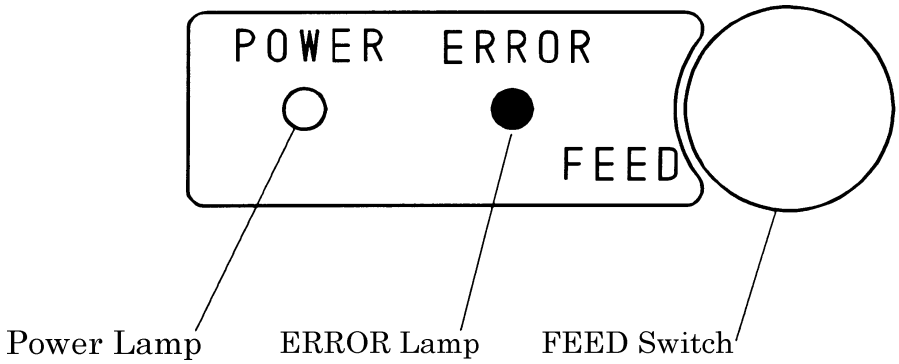
(2) ERROR lamp(Red)
Illuminated when the printer is out of paper or has a printer mechanical error or communication error.

<Details of Errors>

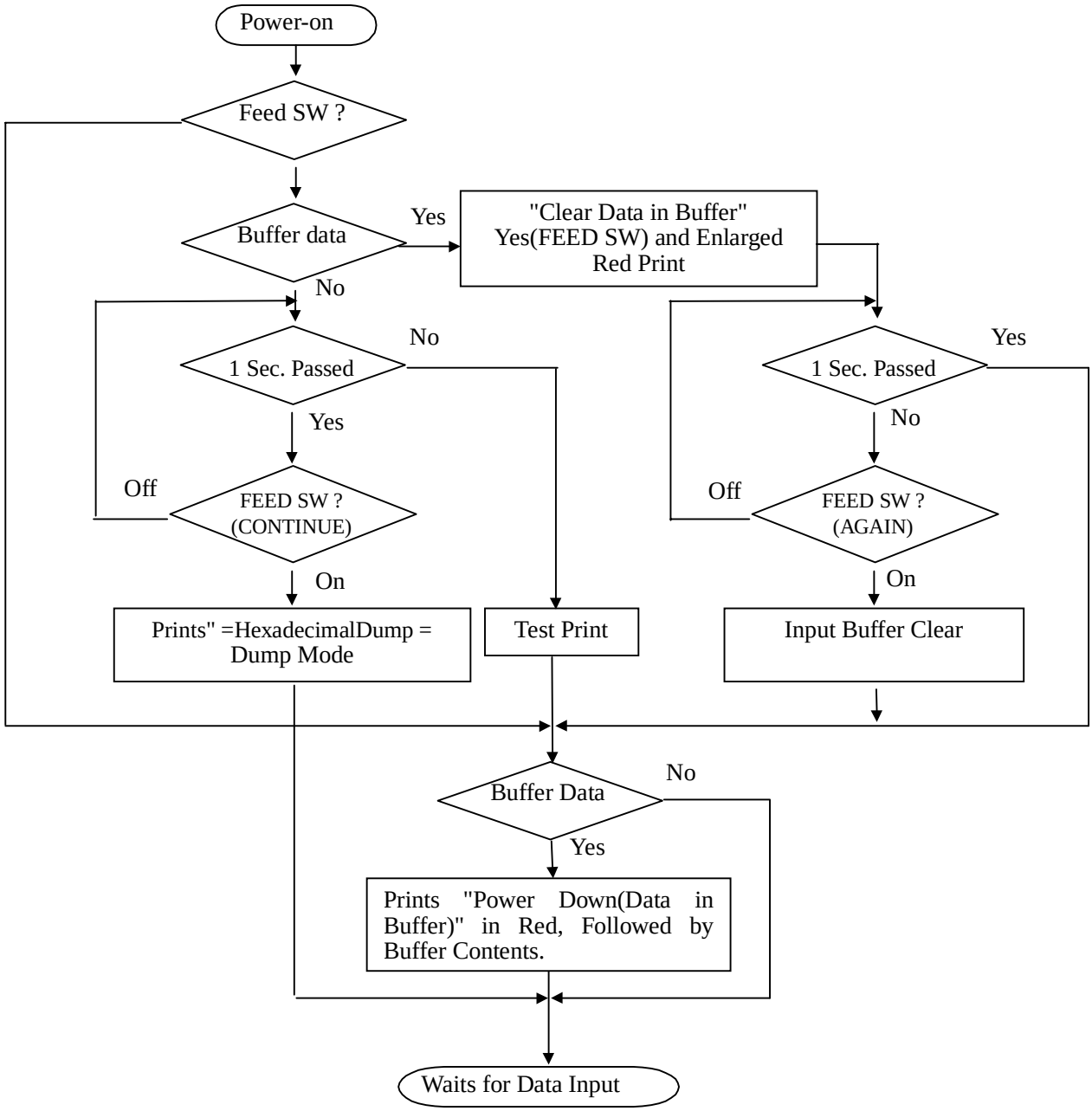
- Paper end ----- If the paper runs out, the paper sensor located in the paper course near the print head detects a paper end, turning on the ERROR LED, thus stopping the printer. If the paper is inserted into the paper course, it is loaded.
- Printer mechanism error ----- If the printer mechanism is abnormally loaded due to a paper jam, etc., the ERROR LED is illuminated, to stop the printer.

(3) FEED switch
The paper is fed by one line by pressing this switch for a short time, and it is fed continuously by holding down the switch.

(4) FEED switch and Power switch
Self-print is performed by turning on the Power switch while pressing the FEED switch.



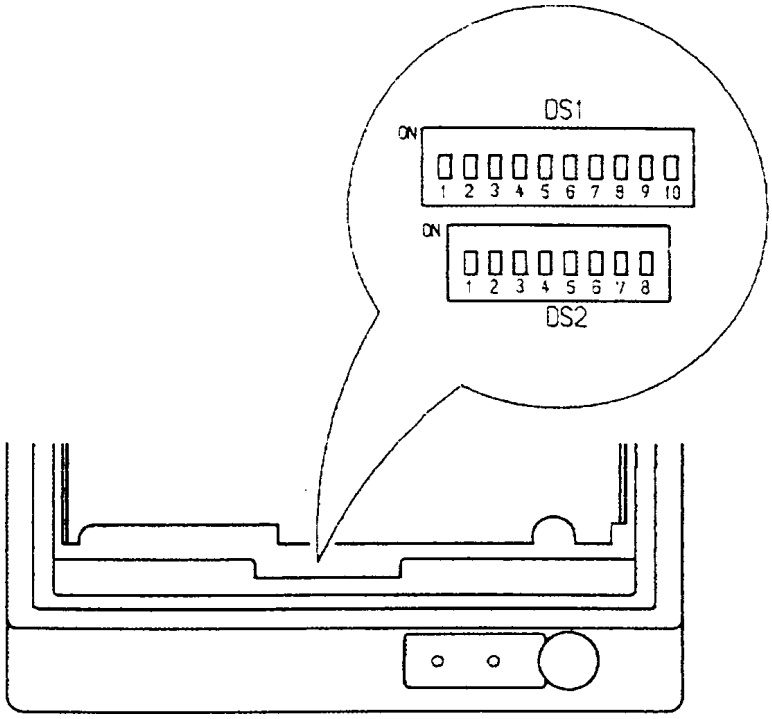
4.9 Operation Flow at Power-on



5. DIP SWITCH SETTING

5.1 Location of DIP Switch

(1) Turn off the power.
(2) Remove a cassette ribbon. The DIP switches are located as shown in the figure below.
(Only DS1 provided for the parallel interface)



5.2 DIP Switches Setting

1) DIP Switch 1

No.	Function	ON	OFF	Upon Shipment from Factory
DS1-1	Auto cutter	Yes	No	OFF
DS1-2	International characters	See the Table below		ON *2
DS1-3	〃			ON *2
DS1-4	〃			ON *2
DS1-5	Paper used	2P	1P	OFF
DS1-6	CR mode	See the Table below		OFF
DS1-7	Number of columns	42	40	ON
DS1-8	Buffer size	6K bytes	256 bytes	ON
DS1-9	Operation mode	See the table below		OFF *3
DS1-10	〃			OFF *3

*1, *3 : Depends on the type.
*2 : Depends on the destination.

International Character Selection

No. / Country	DS1-2	DS1-3	DS1-4
U.S.A.	ON	ON	ON
France	OFF	ON	ON
Germany	ON	OFF	ON
U.K.	OFF	OFF	ON
Denmark	ON	ON	OFF
Sweden	OFF	ON	OFF
Italy	ON	OFF	OFF
Japan	OFF	OFF	OFF

Character Code Selection

ESC/POS mode	CBM mode	Star mode
Code 437	CBM (International)	Star (International)
Code 850	Code 850	Code 850
〃	〃	〃
〃	〃	〃
〃	〃	〃
〃	〃	〃
〃	〃	〃
Katakana	CBM (Domestic)	Star (Domestic)

See the International Character Codes Table and Character Codes Table.

CR mode(DS1-6)

Mode	OFF	ON
CBM	CR+LF	CR
STAR	CR+LF	Ignored
ESC/POS	CR+LF	CR

Operation Mode DS1-9 DS1-10

CBM	OFF	OFF
ESC/POS	ON	OFF
STAR	OFF	ON
STAR	ON	ON

2) DIP Switch 2

No.	Function	ON	OFF	Factory Setting
DS2-1	Bit length	8 bits	7 bits	ON
DS2-2	Parity	No	Yes	ON
DS2-3	Odd/Even	Odd	Even	ON
DS2-4	Communication mode	DTR/DSR	XON/XOFF	ON
DS2-5	Baud rate	See the table below		ON
DS2-6	″			ON
DS2-7	″			OFF
DS2-8	Unused	–	–	OFF

Baud rate

Baud rate(bps)	DS2-5	DS2-6	DS2-7
150	OFF	OFF	OFF
300	OFF	OFF	ON
600	OFF	ON	OFF
1200	OFF	ON	ON
2400	ON	OFF	OFF
4800	ON	OFF	ON
9600	ON	ON	OFF
19200	ON	ON	ON

♦ The DIP switch 2 is used only for the serial interface.

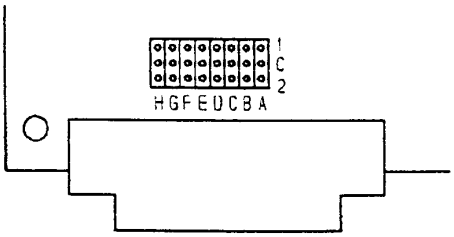
(**Note**) Setting of the paper used simply changes the drive pulse width to the printing head; it does not mean that 2 ply paper is not available for the 1 ply setting. The same applies to when 1 ply paper is used for the 2 ply setting.

6. PRESET JUMPER SETTING

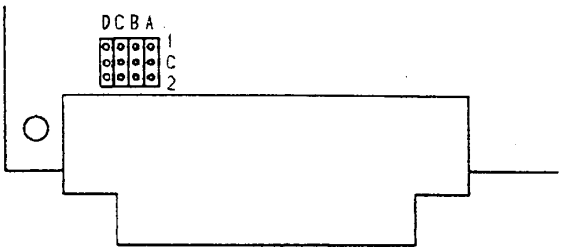
6.1 Location of Preset Jumper

(1) Turn off the power.
(2) Remove a cassette ribbon.
(3) Remove the top cover. The preset jumper is located as shown in the figure below.

Serial Interface



Parallel Interface



6.2 Preset Jumper Table

Serial Interface

Mode / Location	CBM	STAR	ESC/POS
SCA	1-C *	2-C	2-C
SCB	1-C *	1-C *	2-C
SCC	1-C	2-C	*
SCD	1-C	2-C	*
SCE	1-C *	2-C	1-C *
SCF	1-C *	2-C	1-C *
SCG	1-C *	2-C	1-C *
SCH	1-C	2-C *	2-C *

* = Open
1-C * = 1-C or open
2-C * = 2-C or open

Parallel

Mode / Location	CBM	STAR	ESC/POS
SCA	1-C *	1-C	2-C *
SCB	1-C	1-C	2-C
SCC	1-C *	1-C *	2-C
SCD	1-C	1-C	2-C *

* = Open
1-C * = 1-C or open
2-C * = 2-C or open

7. MODE SETTING METHOD

This printer has the CBM, STAR, and ESC/POS mode. Any desired mode can be selected and set according to your need.

(1) Setting method
- See 5. DIP SWITCH SETTING.
- Seeing the settings of the DIP switch 1-9 and 1-10 and those of the preset jumper, set each mode.

8. INPUT BUFFER BACKUP FUNCTION

8.1 Buffer Size

With the DIP switch, you can set either 6K bytes or 256 bytes.

DIP switch 1-8 ON → 6K bytes
OFF → 256 bytes

8.2 Input Buffer Backup

Even if the power is turned off or fails during the printing process, the data in the input buffer will be saved. If the power is turned on again, the printer will print a power failure mark, "==POWER DOWN==," in red and reprints the data from the beginning of the line where it left off.

8.3 Clearing the Input Buffer

When you want to clear the data in the input buffer, turn on the power, holding down the LF switch. A buzzer will sound to inform you that the input buffer has been cleared. Hold down the LF switch until the buzzer sounds.

If the printer prints the data erroneously at power-on, clear the input buffer as described above, and then, re-input the data.

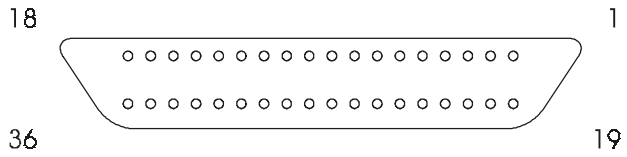
9. PARALLEL INTERFACE

9.1 Specifications

- Data input system : 8-bit parallel system (DATA1 to DATA8)
- Control signals : $\overline{\text{ACK}}$, BUSY, $\overline{\text{STB}}$, $\overline{\text{FAULT}}$, SELECT, $\overline{\text{RESET}}$, COMPULSION
- Applicable connectors : Printer side --- 57LE-40360 (Equivalent to anphenol),
 Cable side --- 57-30360 (Ditto)

9.2 Connector's Pin Configuration

Mode / No.	CBM	STAR	ESC/POS	Mode / No.	CBM	STAR	ESC/POS
1	$\overline{\text{STB}}$	←	←	19	TWISTED PAIR GND	←	←
2	DATA 1	←	←	20	↑	←	←
3	DATA 2	←	←	21	↑	←	←
4	DATA 3	←	←	22	↑	←	←
5	DATA 4	←	←	23	↑	←	←
6	DATA 5	←	←	24	↑	←	←
7	DATA 6	←	←	25	↑	←	←
8	DATA 7	←	←	26	↑	←	←
9	$\overline{\text{DATA}}$ 8	←	←	27	↑	←	←
10	ACK	←	←	28	↑	←	←
11	BUSY	←	←	29	↑	←	←
12	PE(HI-LEVEL)	←	←	30	↑	←	←
13	SELECT	←	←	31	$\overline{\text{RESET}}$	←	←
14	GND	←	←	32	$\overline{\text{FAULT}}$	←	GND
15	GND	NC	←	33	NC	←	←
16	GND	NC	←	34	COMPULSION	←	←
17	FRAME GND	←	←	35	NC	←	Vcc
18	Vcc	←	NC	36	Vcc	←	NC



9.3 Input and Output Signals

9.3.1 Input and Output Signals

(1) Input signals to the printer
- DATA : An 8-bit parallel signal. (Positive logic)
- $\overline{\text{STB}}$: A strobe signal to read the 8-bit data. (Negative logic)
- $\overline{\text{RESET}}$: A signal to reset the printer from the outside.(Negative logic)

(2) Output signals from the printer
- $\overline{\text{ACK}}$: An 8-bit data request signal. A pulse signal output at the end of the BUSY signal. (Negative logic)
- BUSY : A signal to indicate the BUSY status of the printer. Input new data when at "LOW". (Positive logic)
- $\overline{\text{FAULT}}$: A signal turned to "LOW" when the printer has an alarm. At this time, all the control circuits in the printer stop. (Negative logic)
- SELECT : A signal to show whether the printer is selected(on-line) or deselected.(Positive logic)
- COMPULSION : A signal to show the status of the drawer switch.(Positive logic)
- PE : A signal to show that the paper has run out. Normal at the "LOW" level, but turned to the "HIGH" level when the paper has run out.

(3) Power related signal
- GND : Common ground on the circuits
- Vcc : A +5V signal. Connected via a 3.3kΩ resistor.

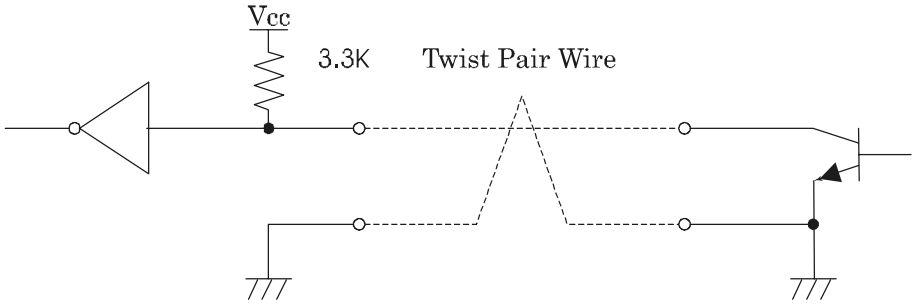
9.3.2 Electrical Characteristics

(1) Input signal level
All the input signals are at the TTL level.
"HIGH" level : 2.0 V at minimum
"LOW" level : 0.8 V at maximum

(2) Output signal level
All the output signals are at the TTL level.
"HIGH" level : 2.4 V at minimum
"LOW" level : 0.4 V at maximum

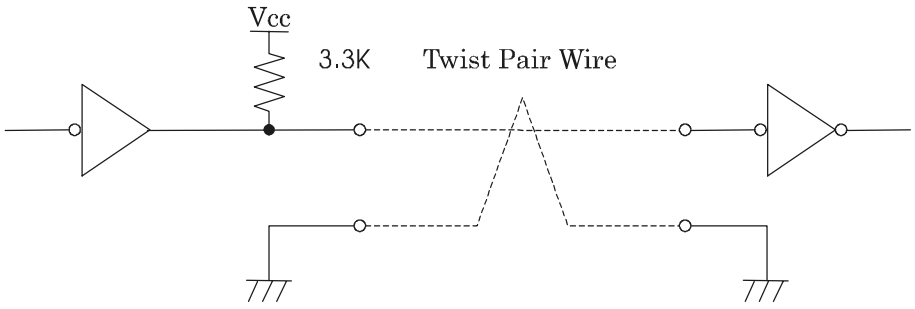
(3) Input and output conditions
All the input signals are pulled up at 3.3 kΩ.

[Printer Side] [Host Side]



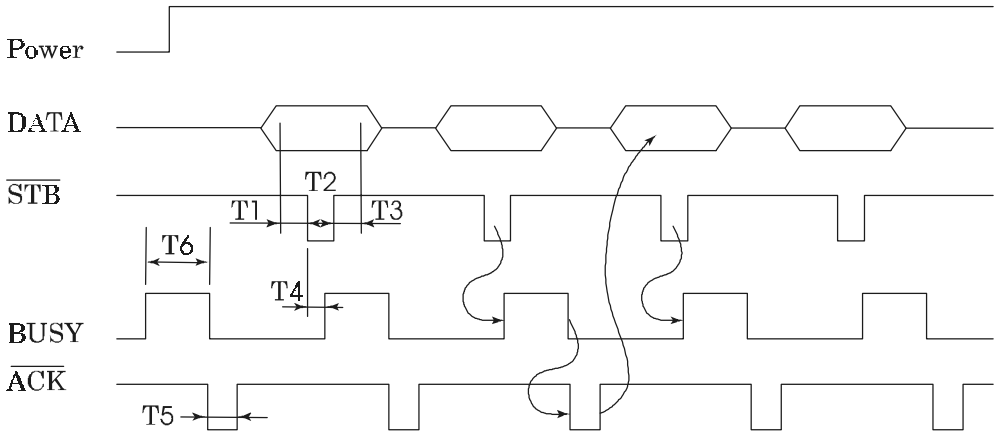
All the output signals are pulled up at 3.3kΩ.

[Printer Side] [Host Side]



9.3.3 Timing Chart

(1) Data input and printing timing



T1, T2, T3 : 0.5 µs MIN
T4 : 270 ns MAX
T5 : 2.3 µs TYP
T6 : 500 ms MIN (At power-on)

9.3.4 Data Receiving Control

When the BUSY signal is at "LOW," the printer can receive the data from the host, but when at "HIGH," it cannot.

10. SERIAL INTERFACE

10.1 Specifications

(1) Synchronous system: Asynchronous

(2) Baud rate: 150, 300, 600, 1,200, 2,400, 4,800, 9,600, or 19,200 bps (User selectable)

(3) Configuration of one word
- Start bit : 1 bit
- Data bits : 7 or 8 bits (User selectable)
- Parity bit : Odd, even, or none (User selectable)
- Stop bit : 1 bit or more

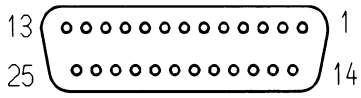
(4) Signal polarity
RS-232C
- Mark = Logic "1" (-3 V ~ -12 V)
- Space = Logic "0" (+3 V ~ +12 V)

(5) Received data (RXD signal)
RS-232C
- Mark = 1
- Space = 0

(6) Reception control (DTR signal)
RS-232C
- Mark : Data transfer disabled
- Space : Data transfer enabled

10.2 Connector's Pin Configuration

No. \ Mode	CBM	STAR	ECS/POS
1	FG	←	←
2	TXD	←	←
3	RXD	←	←
4		RTS	←
5			
6			DSR
7	GND	←	←
8			
9			
10			
11	PE (HI-LEVEL)	RCH	
12	FAULT		
13		GND	
14		FAULT	
15		mTXD	
16		mRXD	
17			
18			
19			
20	DTR	←	←
21			
22			
23	$\overline{\text{RESET}}$		
24			
25			



Cautions: 1. An RS-232C signal is based on the EIA RS-232C.

2. When the data is not being transferred, the received data should be always maintained as a mark.

10.3 Input and Output Signals

10.3.1 Input and Output Signals

(1) RXD
This is a serial received data signal. When a framing error, overrun error, or parity error occurs, that data is printed as "?".

(2) DTR
When this signal is Ready, write the data or a command. If written at the time of Busy, an overrun error results, ignoring the previous data. The data can be written in the input buffer even during printing. Busy is also issued at the time of power-on, test print, on-line, and reset.

(3) TXD
XON(11H) or XOFF(13H) is sent at XON/XOFF control. XON(11H) is sent every 3 seconds in the Star mode.
When a command is received, that requests the printer state and printer status, 1-byte corresponding data is output.

(4) DSR
When this signal is a space, the data is sent from the printer side. Note that if this signal is a mark when a request to send command is executed, the printer will wait until the signal becomes a space.

(5) FAULT
1) CBM mode
When this signal is Space, a mechanical error has occurred.
2) STAR mode
When this signal is Mark, a mechanical error has occurred.

(6) $\overline{\text{RESET}}$
A signal to reset the entire printer.(Negative logic)

(7) RTS
This signal is turned to Space when the printer is turned on.

(8) RCH
When the printer is ready to receive, this signal is turned to Space. This signal line is the same as DTR.

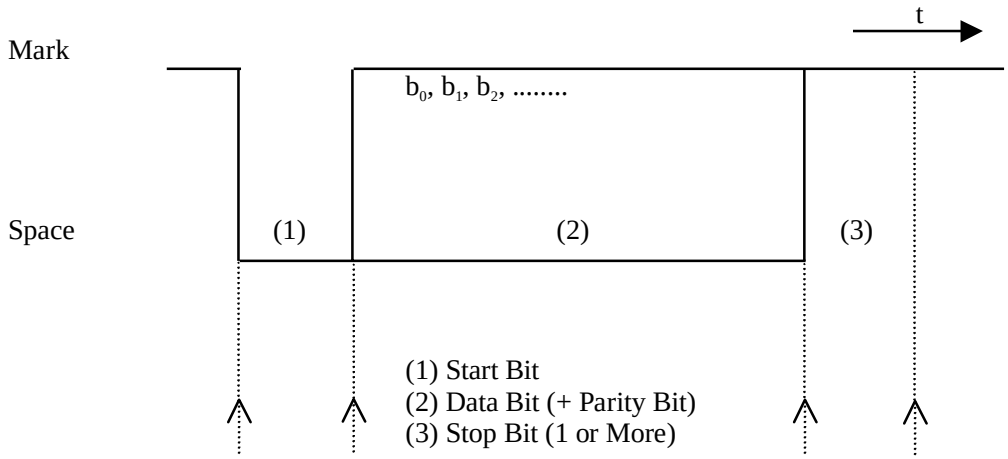
(9) mTXD
TXD signal for the diode gate.

(10) mRXD
RXD signal for the diode gate.

(11) FG
This is a Frame Ground signal.

(12) GND
This is a common ground on the circuit.

10.3.2 Data Configuration



(1) Start bit
After a lapse of 1/2 bit from a mark-to-space fall edge, the state is read again, and if it is a space, it is recognized as the start bit. If it is a mark, it is assumed neither the start bit nor an error, and it is attempted to detect the start bit again.

(2) Data bit + parity bit
The data bit and parity bit are sampled for 1 bit worth of time from the 1/2 start bit. The then state is assumed the data for the corresponding bit. A sequence of the bits are named Bit 0, Bit 1, ..., parity bit, starting from the one closest to the start bit.

(3) Stop bit
The stop bit is a mark level of 1 bit or more. If a space is detected in detecting the stop bit, a framing error results.

10.3.3 Error Detection

A parity error, framing error, and overrun error are detected. When an error is detected, that data is stored in the buffer as "?".

(1) Framing error
This error results when a space is detected in detecting the stop bit. That data is stored in the buffer as "?".

(2) Parity error
If a parity check has been specified and an error is detected at the time of parity check, that data is stored in the buffer as "?".

(3) Overrun error
If an overrun error is detected, that data is stored in the buffer as "?".

10.3.4 Data Receiving Control

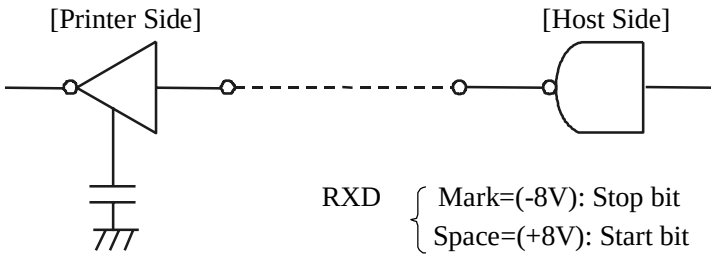
When the DTR signal is a space, the data from the host side can be received. When it is a mark, however, the data cannot be received.

10.3.5 Buffering

The DTR signal and the TXD signal are available as a control signal for data transfer to the input buffer.

10.3.6 Electrical Characteristics

(1) RS-232C circuit
Input (RXD, DSR, mRXD)



Equivalent MAX232

Output (DTR, TXD, mTXD, RCH, RTS, FAULT)



Equivalent to MAX232

DTR { Mark=(-8V): At Busy / Space=(+8V): At Ready

TXD { Mark=(-8V): 1 / Space=(+8V): 0

(2) Others

- $\overline{\text{RESET}}$: A signal to reset the entire printer.
- PE : A signal to show that the paper has run out. Normal at the "LOW" level, but turned to the "HIGH" level when the paper has run out.
- GND : Signal ground
- FG : Frame ground

11. DRAWER KICK-OUT CONNECTOR AND POWER CONNECTOR

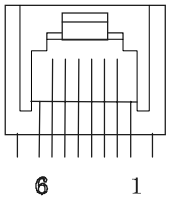
11.1 Specifications of Drawer Kick-Out Connector

(1) Drawer kick-out drive signal
Parallel Interface ----- Can be learned at the no. 34 pin of the interface connector
Serial Interface ----- Provided with a command to learn the status in the Star and ESC/POS modes.

(2) Electrical characteristics
1) Drive voltage: 24 V DC
2) Drive current: 0.8 A at maximum(Within 510 ms)
3) Switch signal: Signal level "L" = 0 ~ 0.5 V
"H" = 3 ~ 5 V

11.2 Connector's Pin Configuration

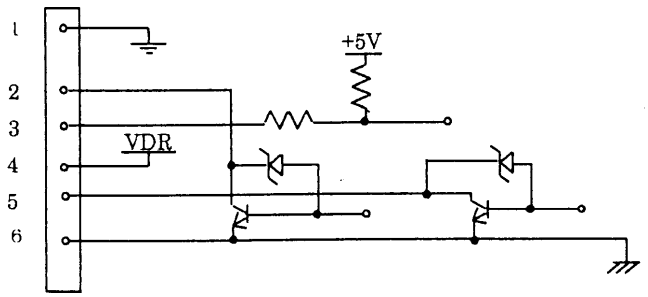
No.	Signal	Function
1	FG	Frame Ground
2	DRAWER 1	Drawer 1 drive signal
3	DRSW	Drawer switch input
4	VDR	Drawer drive power
5	DRAWER 2	Drawer 2 drive signal
6	GND	Common ground on the circuit



Connector used : TM5RJ3-66 (HIROSE)
Applicable connector : TM3P-66P (HIROSE) or equivalent

CAUTION :
- No output is made while printing.
- The drawers 1 and 2 cannot be driven simultaneously.
- A solenoid used for the drawer should be of 36Ω or more. An output current should be kept below 0.8 A. Use beyond this limit cannot be assured.
- This connector cannot be connected to a telephone line. Do not connect other than the solenoid.

11.3 Drive Circuit

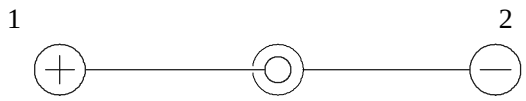


11.4 Specifications of Power Supply Connector

This is a power connector from an exclusive AC adapter.

Connector's Pin Configuration

No.	Function
1	+24V
2	GND



Jack used : HEC0470-01-640(HOSHIDEN) or equivalent
Applicable plug : JXP series Type-A (I.D. 2.45 mm, O.D. 5.5 mm) (HOSHIDEN) or equivalent

⚠CAUTION:
- Be sure to use the specified power supply. Use of unspecified one may lead to a trouble or breakage.
- Do not connect the power supply with different polarities.

12. MAINTENANCE AND SERVICE

For the information on maintenance and service, please contact our dealer or at the following address.

Northern America
CBM America Corporation
Service Center
365 Van Ness Way
Suit 510
Torrance, CA 90501, U.S.A

TEL +1-310-781-1460
FAX +1-310-781-9157

Other Areas
Japan CBM Corporation
Information Systems Division
CBM Bldg., 5-68-10, Nakano
Nakano-ku, Tokyo 164-0001
Japan

TEL +81-3-5345-7540
FAX +81-3-5345-7541

13. PRINT CONTROL FUNCTIONS

13.1 CBM Mode

13.1.1 Command List

	Command	Function	Code	Page
1	FF n	n-line paper feed	0CH n	36
2	SO	Specifying the double width character	0EH	36
3	SI	Canceling the double width character	0FH	37
4	LF	Printing and paper feed	0AH	37
5	CR	Printing	0DH	37
6	DC 1	Initializing the printer	11H	37
7	DC 2	Specifying/Canceling the Inverted character	12H	37
8	DC 3	Specifying the red print	13H	38
9	CAN	Canceling the print data	18H	38
10	ESC * n1 n2	Specifying the bit image mode	1BH 2AH n1 n2	39
11	ESC - n	Specifying/Canceling the Underline	1BH 2DH n	39
12	ESC 1	Specifying 1/9-inch line feed rate	1BH 31H	39
13	ESC 2	Specifying 2/9-inch line feed rate	1BH 32H	40
14	ESC 3	Specifying 1/6-inch line feed rate	1BH 33H	40
15	ESC C n	Setting the page length	1BH 43H n	40
16	ESC N n	Specifying the perforation skip	1BH 4EH n	41
17	ESC O	Canceling the perforation skip	1BH 4FH	41
18	ESC f 1	Form feed (Changing the page)	1BH 66H 01H	41
19	ESC t n	Selecting the character code table	1BH 74H n	42
20	ESC BEL n1 n2	Setting the external device drive pulse width	1BH 07H n1 n2	43
21	BEL	Driving command A for Drawer-1	07H	43
22	FS	Driving command B for Drawer-1	1CH	44
23	SUB	Driving command for Drawer-2	1AH	44
24	RS	Buzzer-on	1EH	44
25	ESC R n	Selecting the international character set	1BH 52Hn	45
26	ESC & 0 n1 n2	Defining the download character set	1BH 26H 00H n1 n2	46
27	ESC % n	Specifying/Canceling download character set	1BH 25H n	39
28	ESC / n	Definition the message	1BH 2FH n	39
29	ESC DC3 n	Printing the message	1BH 13H n	48
30	ESC DC2 n1 n2	Deleting the download character, message, bit image	1BH 12H n1 n2	49
31	GS * n1 n2	Defining the download, bit image	1DH 2AH n1 n2	50
32	GS / m	Printing the download, bit image	1DH 2FH m	51

13.1.2 Description of Items

XXXX ALL

[Function]	Command name
[Code]	A row of command constituent code is represented by a hexadecimal number with < >H, binary number with < >B, and a decimal number with < >. []k means a repeat count of k-times.
[Range]	Describes an argument value (Setting range) for the command.
[Outline]	Describes a command function.
[Caution]	Describes a caution as required.
[Default]	Describes an initial value for the command when accompanied by an argument.
XXX	Shows a command.

Details

FF n

[Function] n-line paper feed

[Code] <0C>H n

[Range] $1 \leq n \leq 127$

[Outline] This command feeds the paper by n-lines. You can set n = 1 to 127 lines. If the print buffer contains the data, use of this command feeds the paper by n-lines after printing the data. Setting n = 0 does not feed the paper.

SO

[Function] Specifying the double width character

[Code] <0E>H

[Outline] The data following this command is printed doubled in the horizontal direction. Double width characters remain valid until the double width character cancel command is entered, but they are also cancelled after they are printed one line. Note that the double width characters take up two ordinary characters worth of width.

SI

[Function] Canceling the double width character

[Code] <0F>H

[Outline] This command cancels the double width characters set with SO. The data following this command are printed in the ordinary character width.

LF

[Function] Printing and paper feed

[Code] <0A>H

[Outline] If the print buffer contains the data, this command will feed the line after printing. If not, the command only feeds the line.

CR

[Function] Printing

[Code] <0D>H

[Outline] This command prints the data. If the DIP switch segments 1 to 6 are set to OFF, the printer will print the data in the print buffer and feed the paper by one line. If they are set to ON, the printer will print the data in the print buffer and will not feed the paper.

DC1

[Function] Initializing the printer

[Code] <11>H

[Outline] This command initializes the printer.
The input buffer is not cleared.
The settings of the DIP switch segments are not re-read.

DC2

[Function] Specifying/Canceling the inverted character

[Code] <12>H

[Outline] This command selects/deselects the inverted characters. Enter this command at the beginning of one line. Otherwise, it is overridden. Erect and inverted characters cannot be mixed in one line.

DC3

[Function] Specifying the red print

[Code] <13>H

[Outline] This command specifies red-color characters. All the characters in one line are printed in red by prefixing the print data with this command and sending it to the printer. When you want to use red characters, use this command for each line.

CAN

[Function] Canceling the print data

[Code] <18>H

[Outline] This command clears the print data in the lines entered prior to this command.

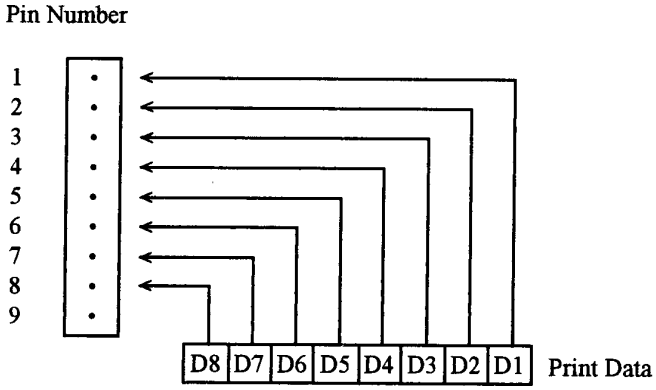
ESC "*" n1 n2

[Function] Specifying the bit image mode

[Code] <1B>H <2A>H n1 n2

[Range] $1 \leq n1 + 256 \times n2 \leq 378$

[Outline] This command allows printing in the bit image mode. Divide the number of dots printed by 256 and assume its quotient to be n2 and remainder to be n1. Therefore, the number of horizontal dots will be $n1 + 256 \times n2$.
If the bit image data is entered beyond the dot positions printable in one line, the surplus data will be discarded. Normal data processing is restored after bit image printing. Printing is done in a single direction.



ESC "-" n

[Function] Specifying/Canceling the underline

[Code] <1B>H <2D>H n

[Outline] This command selects/deselects an underline. The underline is selected at n = 1 and deselected at n = 0.

[Default] n = 0

ESC "1"

[Function] Setting the 1/9-inch line feed width

[Code] <1B>H <31>H

[Outline] This command sets the line feed width to 1/9 inch.

ESC "2"

[Function] Setting the 2/9-inch line feed width

[Code] <1B>H <32>H

[Outline] This command sets the line feed width to 2/9 inch.

ESC "3"

[Function] Setting the 1/6-inch line feed width

[Code] <1B>H <33>H

[Outline] This command sets the line feed width to 1/6 inch(Default).

ESC "C" n

[Function] Setting the page length

[Code] <1B>H <43>H n

[Range] $1 \leq n \leq 127$

[Outline] Sets the 1-page length to n-lines.

ESC "N" n

[Function] Specifying the perforation skip

[Code] <1B>H <4E>H n

[Range] 1 ≤ n ≤ 126

[Outline] This command feeds(Skips) the lines specified with n without printing. However, you cannot specify beyond the length of one page.

ESC "O"

[Function] Canceling the perforation skip

[Code] <1B>H <4F>H

[Outline] This command cancels perforation skipping operation.

ESC "f" 1

[Function] Form feed (Changing the page)

[Code] <1B>H <66>H <01>H

[Outline] This command searches for the beginning of the next page after printing the data in the print buffer.

ESC "t" n

[Function] Selecting the character code table

[Code] <1B>H <74>H n

[Range] 0 ≤ n ≤ 255

[Outline] This command selects Page-n of Character Code Table.

[Default] Depends upon DIP switch setting.

n	Character Code Table	n	Character Code Table
0	CBM International	6	Code Page 852 (Eastern Europe)
1	CBM Domestic	7	Code Page 866 (Russia)
2	Code Page 850 (Multilingual)	8	Code Page 857 (Turkey)
3	Code Page 860 (Portugal)	9	Windows Code
4	Code Page 863 (Canada-French)		
5	Code Page 865 (Norway)	255	Space Page (For user setting)

ESC BEL n1 n2

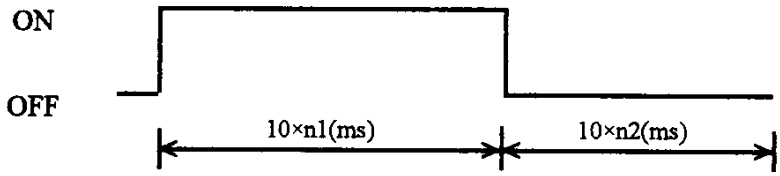
[Function] Setting the external device drive pulse width

[Code] <1B>H <07>H n1 n2

[Range] $1 \leq n1 \leq 127$ $1 \leq n2 \leq 127$

[Outline] This command sets the power-on time to drive an external device (Cash drawer).
Power-on time = n1 × 10 (ms)
Delay time = n2 × 10 (ms)
To actually drive the drawer, use the <BEL> and <FS> commands.

[Default] n1 = n2 = 20



BEL

[Function] Driving command A for drawer-1

[Code] <07>H

[Outline] This command drives the drawer connector no. 2 pin under the condition set with the <ESC><BEL> n1 n2 command. This command is executed in order of entry into the input buffer.

FS

[Function] Driving command B drawer-1

[Code] <1C>H

[Outline] This command drives the drawer connector No. 2 pin under the condition set with the <ESC><BEL> n1 n2 command.

SUB

[Function] Driving command for drawer-2

[Code] <1A>H

[Outline] As soon as this command is received, the drawer connector no. 5 pin is driven. The power-on time is 200 ms ON and 200 ms OFF stationary. The drawers 1 and 2 cannot be driven simultaneously.

RS

[Function] Buzzer-on

[Code] <1E>H

[Outline] This command emits a short warning sound from the printer.

ESC "R" n

[Function] Selecting the international character set

[Code] <1B>H <52>H n

[Range] $0 \leq n \leq 10$

[Outline] This command selects the international characters according to the value of n.

n	Character Set	n	Character Set
0	U.S.A.	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	U.K.	9	Norway
4	Denmark I	10	Denmark II
5	Sweden		

[Default] Depends upon DIP switch setting.

ESC "&" <0> n1 n2 [m0 m1 ... m5 m6 m7 m8 m9] n2 - n1 + 1

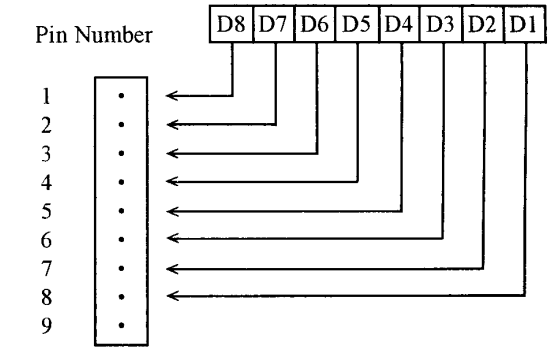
[Function] Defining the Download character set

[Code] <1B>H <26>H <00>H n1 n2 [m0 m1 ... m5 m6 m7 m8 m9] n2 - n1 + 1

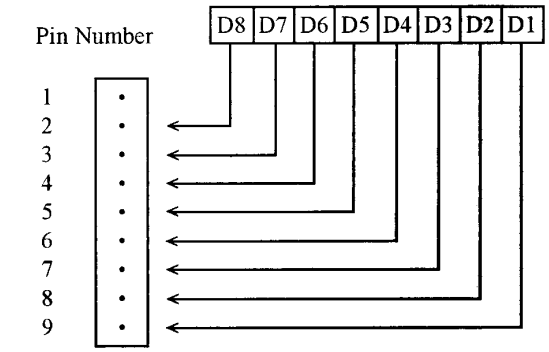
[Range] 32 ≤ n1 ≤ n2 ≤ 255 m0 = 0 or m0 = 128

[Outline] This command defines he download characters. n1 is a character code to start definition and n2 is to end definition, respectively. When defining only one character, set n1 = n2. You can define the ASCII codes ranging from 32 to 255. Once the download characters are defined, they remain valid until they are redefined or the download deletion command (ESC DC2 n1 n2) is executed.

When m0=(80)H



When m0=(00)H



Horizontal adjacent dots cannot be printed.

ESC "%" n

[Function] Specifying/Canceling the download character set

[Code] <IB>H <25>H n

[Outline] This command selects/deselects the download character set. The download characters cannot be printed by simply defining them with the above-mentioned ESC & 0 command. To print them, send this command to the printer.

n	Download Character Set
0	Deselects
30	
1	Selects
31	

ESC "/" n "data" CR or LF

[Function] Defining the Message

[Code] <1B>H <2F>H n "data" CR or LF

[Range] $1 \leq n \leq 10$

[Outline] This command can define up to a 50-byte message in one line. If the value of n is specified beyond the range, the data following n will be treated as the print data.
Once the message is defined, it remains valid until it is redefined. The data should end with CR (0DH) or LF (0AH). If the data exceeds 50 bytes, the subsequent data will be treated as the print data.
Once the message is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.

ESC DC3 n

[Function] Printing the message

[Code] <1B>H <13>H n

[Range] $1 \leq n \leq 10$

[Function] This command prints a message. If the value of n is specified beyond the range, the message will not be printed.

ESC DC2 n1 n2

[Function] Deleting the download character, message, bit image

[Code] <1B>H <12>H n1 n2

[Range] $0 \leq n1 \leq 3$
$0 \leq n2$ (Specify 0 at n1 = 0)
($1 \leq n2 \leq 10$ at n1 = 1)
($32 \leq n2 \leq 255$ at n1 = 2)
(Specify 0 at n1 = 3)

[Outline] This command deletes the downloaded characters, message, and bit image.

n 1	Object Deleted
0	All(Message, characters, bit image)
1	Download message
2	Download characters
3	Download bit image

With n2, specify which data of the function specified with n1 should be deleted.
n2 = 0 Deletes all the data saved with the download function specified with n1.
n2≠0 Deletes the data downloaded at the value specified with n2 (Value specified when saving with each download command), of the download function specified with n1.
Note) No meaning when n1 = 0 is set.

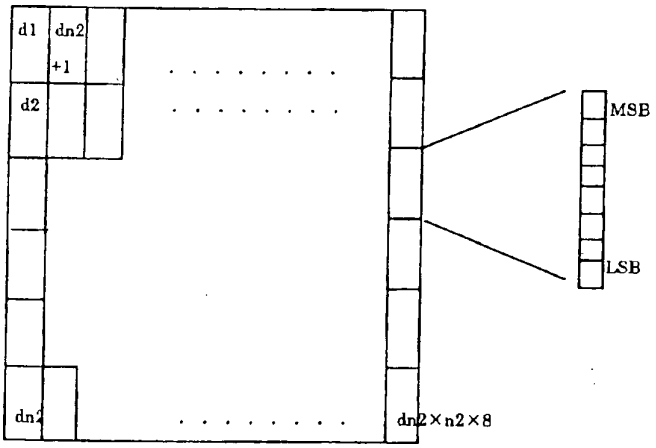
GS "*" n1 n2 [d] n1 × n2 × 8

[Function] Defining the download, bit image

[Code] <1D>H <2A>H <n1> <n2> [<d>] n1 × n2 × 8

[Range] 1 ≤ n1 ≤ 45 0 ≤ n2 ≤ 24
Note) Take care that the number of data (n1×n2×8) is equal to or smaller than 2,048.

[Outline] This command defines the download bit image having the dots specified n1 and n2. The number of horizontal dots is represented by n1 × 8 and that of vertical dots is represented by n2 × 8, respectively. m denotes the number to be registered. (See a download bit image printout.) d denotes the bit image data. Once the download bit image is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.



GS / m

[Function] Printing the download, bit image

[Code] <1D>H <2F>H m

[Range] 0 ≤ m ≤ 255

[Outline] This command prints the bit image saved in the number specified with m.

[Caution] If the print buffer contains the data, this command will be ignored. If the bit image has not been saved in the specified number, this command will be ignored.
Nothing is printed when m is other than 0,1,2 or 3.

13.2 STAR Mode

13.2.1 Command List

	Command	Function	Code	Page
1	ESC R n	Selecting the international character set	1BH 52H n	54
2	ESC 6	NOP	1BH 36H	
3	ESC 7	NOP	1BH 37H	
4	ESC M	NOP	1BH 4DH	
5	ESC P	NOP	1BH 50H	
6	ESC :	NOP	1BH 3AH	
7	SO	Specifying the double width character	0EH	54
8	DC4	Canceling the double width character	14H	55
9	ESC E	Specifying the highlight character	1BH 45H	55
10	ESC F	Canceling the highlight character	1BH 46H	55
11	ESC -	Specifying/Canceling the underline	1BH 2DH n	56
12	ESC _	NOP	1BH 5FH n	
13	ESC 4	Specifying the red print	1BH 34H	56
14	ESC 5	Canceling the red print	1BH 35H	56
15	SI	Specifying the inverted character	0FH	57
16	DC2	Canceling the inverted character	12H	57
17	LF	Printing and paper feed	0AH	58
18	CR	Printing	0DH	58
19	ESC z	Setting the 1/6-inch line feed	1BH 7AH	58
20	ESC 0	NOP	1BH 30H	
21	ESC a n	n-line paper feed	1BH 61H n	59
22	FF	Form feed (Change the page)	0CH	59
23	ESC C n	Setting the n-line page length	1BH 43H n	59
24	ESC C 0 n	Setting the n-inch page length	1BH 43H 00 n	60
25	VT	Vertical tab	0BH	60
26	ESC B n1 n2	Setting the vertical tab position	1BH 42H n1 n2	61
27	ESC N n	Setting the lower margin	1BH 4EH n	61
28	ESC 0	Canceling the lower margin	1BH 4FH	62
29	ESC 1 n	Setting the left margin	1BH 6cH n	62
30	ESC Q [n] k NUL	Setting the right margin	1BH 51H n	62
31	HT	Horizontal tab	09H	63
32	ESC D n1 n2	Setting the horizontal tab position	1BH 44H n1 n2	64
33	ESC 1	Setting the 1/9-inch line feed width	1BH 31H	65
34	ESC A n	NOP	1BH 41H n	
35	ESC 2	Setting the 2/9-inch line feed width	1BH 32H	65
36	ESC J n	NOP	1BH 4AH n	
37	ESC K n1 <0>	Specifying the 8-dot standard density bit image	1BH 4BH n1 00H	66
38	ESC L n1 n2	Specifying the 8-dot double density bit image	1BH 4CH n1 n2	67
39	ESC h n	Specifying/Canceling the double height character	1BH 68H n	68
40	ESC & <0> n1 n2	Defining the download character	1BH 26H 00H n1 n2	69
41	ESC % n	Specifying/Canceling the download character set	1BH 25H n	70

	Command	Function	Code	Page
42	ESC BEL n1 n2	Setting the external device drive pulse width	1BH 07H n1 n2	71
43	BEL	Driving command A for drawer-1	07H	71
44	FS	Driving command B for drawer-1	1CH	72
45	SUB	Driving command for drawer-2	1AH	72
46	RS	Buzzer-on	1EH	72
47	CAN	Canceling the print data	18H	73
48	DC3	Setting the deselect mode	13H	73
49	DC1	Setting the Select mode	11H	73
50	ESC U n	Selecting the Unidirectional/bidirectional print mode	1BH 55H n	74
51	ESC @	Initializing the printer	1BH 40H	74
52	ENQ	Enquiry	05H	75
53	STX	Text start	02H	76
54	ETX	Text end command	03H	76
55	ESC t n	Selecting the character code table	1BH 74H n	78
56	ESC／n	Defining the message	1BH 2FH n	79
57	ESC DC3	Printing the message	1BH 13H n	79
58	ESC DC2 n1 n2	Deleting the download character, message bit image	1BH 12H n1 n2	80
59	GS ＊ n1 n2	Defining the download, bit image	1DH 2AH n1 n2	81
60	GS／m	Printing the download, bit image	1DH 2FH m	82

Details

ESC “R” n

[Function] Selecting the international character set

[Code] <1B>H <52>H n

[Range] 0 ≤ n ≤ 10

[Outline] This command selects the international characters according to the value of n.

n	Character Set	n	Character Set
0	U.S.A.	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	U.K.	9	Norway
4	Denmark I	10	Denmark II
5	Sweden		

[Default] Depends upon DIP switch setting.

SO

[Function] Specifying the double width character

[Code] <0E>H

[Outline] The data following this command is printed doubled in the horizontal direction. Double width characters remain valid until the double width character cancel command is entered, but they are also cancelled after they are printed one line. Note that the double width characters take up two ordinary characters worth of width.

DC4

[Function] Canceling the double width character

[Code] <14>H

[Outline] This command deselects the double width characters set with SO. The data following this command will be printed in ordinary characters.

ESC "E"

[Function] Specifying the highlight character

[Code] <1B>H <45>H

[Outline] The data following this command is printed in highlight (Double) characters. The highlight characters remain valid until the highlight character deselection command is entered.

ESC "F"

[Function] Canceling the highlight character

[Code] <1B>H <46>H

[Outline] This command deselects the highlight characters set with ESC "E". The data following this command will be printed in ordinary characters.

ESC "-" n

[Function] Specifying/Canceling the underline

[Code] <1B>H <2D>H n

[Outline] This command selects/deselects an underline. The underline is selected at n = 1 and deselected at n = 0.
The space by the horizontal tab is not underlined.

ESC "4"

[Function] Specifying the red print

[Code] <1B>H <34>H

[Outline] This command prints its subsequent data in red. This command remains valid until the red print deselection command is entered. Red and black characters cannot be mixed in one line.

ESC "5"

[Function] Canceling the red print

[Code] <1B>H <35>H

[Outline] This command deselects red print.

SI

[Function] Specifying the inverted character

[Code] <0F>H

[Outline] This command selects and prints the inverted characters. Enter it at the beginning of one line. Otherwise, it will be invalid. Erect and inverted characters cannot be mixed in one line.

DC2

[Function] Canceling the Inverted character

[Code] <12>H

[Outline] This command deselects the inverted characters. Enter this command at the beginning of one line.

LF

[Function] Printing and paper feed

[Code] <0A>H

[Outline] If the print buffer contains the data, this command will feed the line after printing. If not, the command only feeds the line.

CR

[Function] Printing

[Code] <0D>H

[Outline] This command prints the data. If the DIP switch segments 1 to 6 are set to OFF, the printer will print the data in the print buffer and feed the paper by one line. If they are set to ON, the printer will print the data in the print buffer and will not feed the paper.

ESC "z"

[Function] Setting the 1/6-inch line feed width

[Code] <1B>H <7A>H

[Outline] This command sets the line feed width to 1/6 inch (Default).

ESC "a" n

[Function] Setting the n-line paper feed

[Code] <1B>H <61>H n

[Range] 1 ≤ n ≤ 127

[Outline] This command feeds the paper by the number of lines specified with n. You can set n = 1 to 127 lines. If the print buffer contains the data, use of this command feeds the paper by n-lines after printing the data.

FF

[Function] Form feed (Changing the page)

[Code] <0C>H

[Outline] This command searches for the head of the next page after printing the data in the print buffer.

ESC "C" n

[Function] Setting the n-line page length

[Code] <IB>H <43>H n

[Range] 1 ≤ n ≤ 255

[Outline] Sets the 1-page length to n-lines.

[Default] n = 42

ESC "C" <0> n

[Function] Setting the n-inch page length

[Code] <1B>H <43>H <0> n

[Range] 1 ≤ n ≤ 127

[Outline] This command sets the length of one page to n-inches.

[Default] n = 42

VT

[Function] Vertical tab

[Code] <0B> H

[Outline] This command feeds the paper to the next vertical tab position. It cannot be fed unless the vertical tab position has been set. If the current position is equal to or greater than the maximum set vertical tab position, it will be fed to the head of the next page.

ESC "B" [n]k NUL

[Function] Setting the vertical tab position

[Code] <1B>H <42>H [n]k <00>

[Range] $1 \leq n \leq 255$
$1 \leq k \leq 16$

[Outline] This command cancels the already set vertical tab positions and sets new vertical tab positions. They are set in the ascending order and ends with <00>. Up to 16 vertical tabs can be set. If the tab setting position <nK> is equal or smaller than the preceding set position <nk-1>, it is assumed that setting of the vertical tabs has been completed.

ESC "N" n

[Function] Setting the lower margin

[Code] <1B>H <4E>H n

[Range] $0 \leq n \leq 255$

[Outline] This command sets the n-line lower margin.

[Default] n = 0

ESC "O"

[Function] Canceling the lower margin

[Code] <1B>H <4F>H

[Outline] This command deselects the set lower margin.

ESC "l" n

[Function] Setting the left margin

[Code] <1B>H <6C>H n

[Range] 0 ≤ n ≤ (Right margin - 2)

[Outline] This command sets the left margin and printing starts from the column next to the set margin.

ESC "Q" n

[Function] Setting the right margin

[Code] <1B>H <51>Hn

[Range] 2 ≤ n ≤ (Max. print columns)

[Outline] This command sets the right margin and printing is performed up to n-columns.

HT

[Function] Horizontal tab

[Code] <09>H

[Outline] This command moves a printing position to the preset next horizontal tab position. This command will be ignored unless there is the next horizontal tab position.

ESC "D" [n] k NUL

[Function] Setting the horizontal tab position

[Code] <1B>H <44>H [n] k <00>H

[Range] $1 \leq n \leq$ Max. print columns – 1
$1 \leq k \leq 16$

[Outline] This command sets the horizontal tab positions. n indicates the number of lines from the head of the line to the horizontal tab setting position; n equals the set column position - 1." k indicates the number of horizontal tab positions to be set.
The tab position is set at the character width × n from the head of the line. The character width at this time includes the right space of the character and will be doubled if the double width characters are specified.
The data <n>k indicating the set position is entered in the ascending order and ends with <00>H. ESC D NUL clears all the set tab positions. After clearing the tab positions, HT will be ignored.

[Caution] If the data <n>k is equal to or smaller than the preceding data <n>k - 1, it is assumed that horizontal tab setting has been completed. In that case, the subsequent data will be processed as regular one.
Up to 16 tab positions can be set. If the data exceeds this limit, it will be processed as regular data. If the data <n>k exceeds the one-line print range, the set column position will equal the maximum print columns + 1.
If the character width is changed after setting the horizontal tab positions, they will not change.

ESC "1"

[Function] Setting the 1/9-inch line feed width

[Code] <1B>H <31>H

[Outline] This command sets the line feed width to 1/9 inch.

ESC "2"

[Function] Setting the 2/9-inch line feed width

[Code] <1B>H <32>H

[Outline] This command sets the line feed width to 2/9 inch.

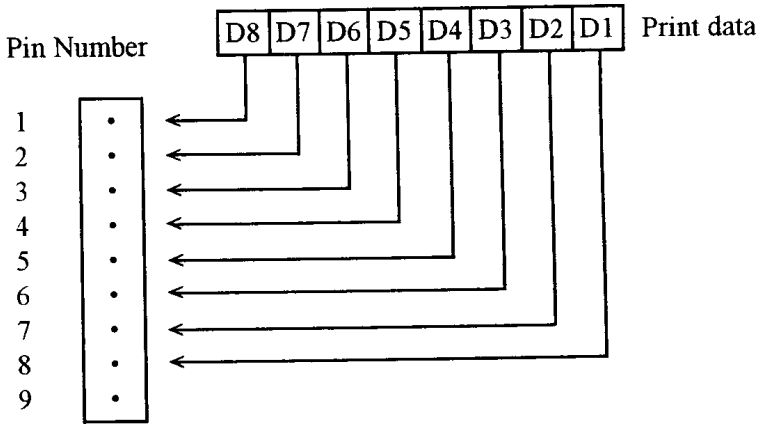
ESC "K" n1 <0> m1 m2 ...

[Function] Specifying the 8-dot standard density bit image

[Code] <1B>H <4B>H n1 <00>H m1 m2 ...

[Range] $1 \leq n1 \leq 378/2$

[Outline] This command prints the bit image by the number of data specified with n1. Printing will be unidirectional. The surplus data exceeding the printable quantity in one line will be ignored. The printer will automatically return to the character mode after printing the bit image.



ESC "L" n1 n2 m1 m2 ...

[Function] Specifying the 8-dot double density bit image

[Code] <1B>H <4C>H n1 n2 m1 m2 ...

[Range] $1 \leq n1 + 256 \times 2 \leq 378$

[Outline] This command prints the 8-dot double density (Half-dot print) bit image. Printing will be unidirectional. The surplus data exceeding the printable quantity in one line will be ignored. The printer will automatically return to the character mode after printing the bit image.
The relations between the printing head pin numbers and the data are the same as the 8-dot standard density bit image command. When printing the double density bit image, the horizontally adjacent dots cannot be printed.

ESC "h" n

[Function] Specifying/Canceling the double height character

[Code] <1B>H <68>H n

[Outline] The data following this command is printed in double height characters, except the bit image mode <ESC> "K" and <ESC> "L". In combination with the <SO> command, this command can print double height, double width characters.
It cannot be combined with the inverted character command, <SI>. The double height characters and ordinary characters shall be bottom-justified.

n	Double height character command
0	Deselects
30	
1	Selects
31	

ESC "&" <O> n1 n2 m0 m1 m2 m3 m4 m5 m6 m7 m8 m9] n2 - n1 + 1

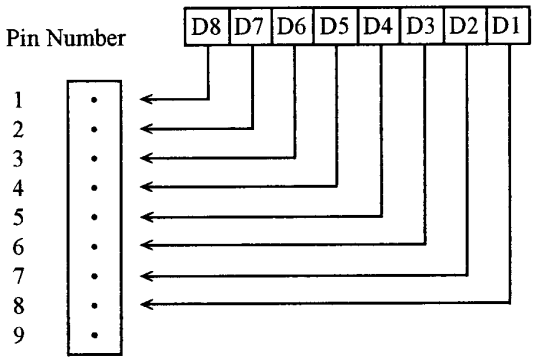
[Function] Defining the download character set

[Code] <1B>H <26>H <00>H n1 n2 [m0 m1 ... m5 m6 m7 m8 m9] n2 - n1 + 1

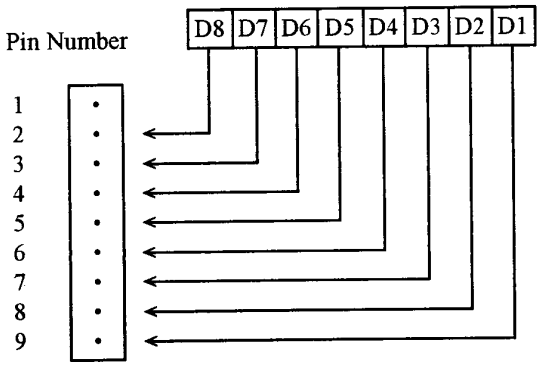
[Range] 32 ≤ n1≤ n2 ≤ 255 m0 = 0 or m0 = 128

[Outline] This command defines he download characters. n1 is a character code to start definition and n2 is to end definition, respectively. When defining only one character, set n1 = n2. You can define the ASCII codes ranging from 32 to 255.
The horizontally adjacent dots cannot be printed. Once the download bit image is defined, it remains valid until it is redefined or the download deletion command(ESC DC2 n1 n2) is executed.

When m0=(80)H



When m0=(00)H



Horizontal adjacent dots cannot be printed.

ESC "%" n

[Function] Specifying/Canceling the download character set

[Code] <1B>H <25>H n

[Outline] This command selects/deselects the download character set. The download characters cannot be printed by simply defining them with the above-mentioned ESC & 0 command. To print them, send this command to the printer.

n	Download Character Set
0	Deselects
30	
1	Selects
31	

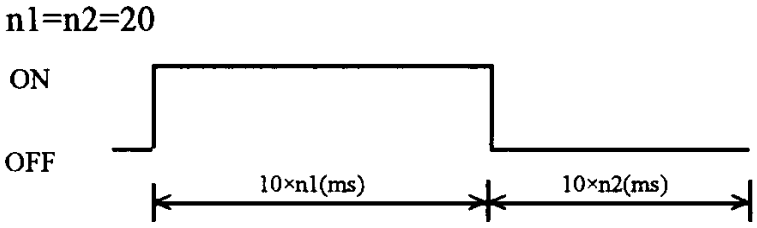
ESC BEL n1 n2

[Function] Setting the external device drive pulse width

[Code] <1B>H <07>H n1 n2

[Range] $1 \leq n1 \leq 127$
$1 \leq n2 \leq 127$

[Outline] This command sets the power-on time to drive an external device(Cash drawer).
Power-on time = n1 × 10 (ms)
Delay time = n2 × 10 (ms)
To actually drive the drawer, use the <BEL> and <FS> commands.



[Default] n1 = n2 = 20 (200ms)

BEL

[Function] Driving command A for drawing-1

[Code] <07>H

[Outline] This command drives the drawer connector no. 2 pin under the condition set with the <ESC><BEL> n1 n2 command. This command is executed in order of entry into the input buffer.

FS

[Function] Driving command B for drawer-1

[Code] <1C>H

[Outline] This command drives the drawer connector no. 2 pin under the condition set with the <ESC><BEL> n1 n2 command.

SUB

[Function] Driving command for drawer-2

[Code] <1A>H

[Outline] As soon as this command is received, the drawer connector no. 5 pin is driven. The power-on time is 200 ms ON and 200 ms OFF stationary. The drawers 1 and 2 cannot be driven simultaneously.

RS

[Function] Buzzer-on

[Code] <1E>H

[Outline] This command emits a short warning sound from the printer.

CAN

[Function] Canceling the print data

[Code] <18>H

[Outline] This command clears the input buffer and print buffer. In the STX-EXT mode of the serial interface printer, the command clears the data in the data buffer and ends the STX-ETX mode.

DC3

[Function] Setting the deselect mode

[Code] <13>H

[Outline] If the printer receives <DC3>, it will ignore the subsequent data. The Deselect mode is cancelled by <DC1>.

DC1

[Function] Setting the select mode

[Code] <11H>

[Outline] If the printer receives this command, it will save the subsequent data in the input buffer.

ESC "U" n

[Function] Selecting the Unidirectional/Bidirectional print mode

[Code] <1B>H <55>H n

[Range] $0 \leq n \leq 255$

[Outline] This commands selects or deselects unidirectional print.

n0 = 0	Bidirectional print
n0 = 1	Unidirectional print

ESC "@"

[Function] Initializing the printer

[Code] <1B>H <40>H

[Outline] This command cancels various conditions set after power-on to initializes the printer to the conditions having existed at power-on. However, the input buffer is not initialized.

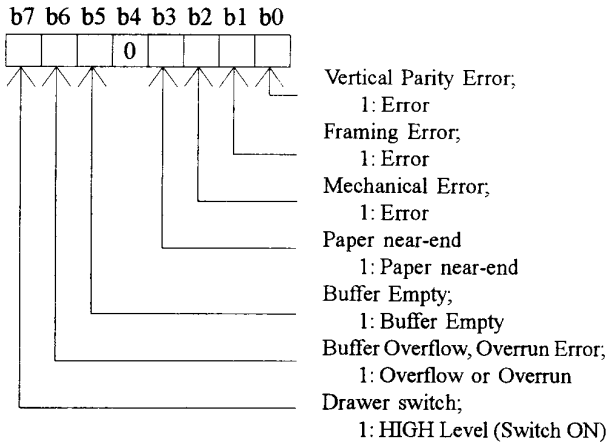
ENQ

[Function] Enquiry

[Code] <05>H

[Outline] This command is valid only for the serial interface. The printer sends the status information. If this command is entered after receiving the text information in the STX-ETX mode, the printer will send the status information and check byte.

Status



STX

[Function] Text start

[Code] <02>H

[Outline] This command is valid only for the serial interface. It effectuates the STX-ETX mode.

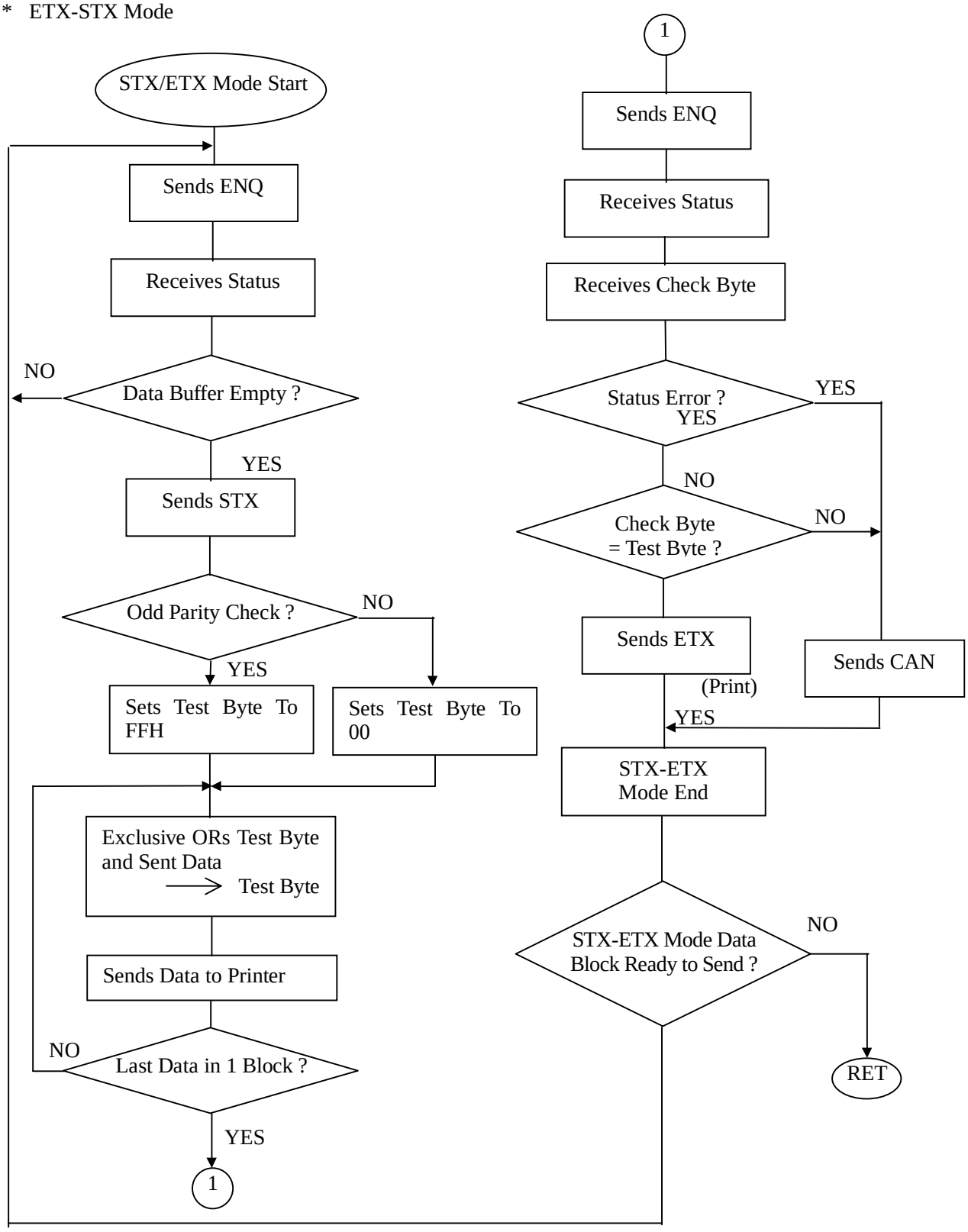
ETX

[Function] Text end

[Code] <03>H

[Outline] This command is valid only for the serial interface. It ends the STX-ETX mode and prints the data.

* ETX-STX Mode


STX/ETX Mode Start
Sends ENQ
Receives Status
Data Buffer Empty ?
NO
YES
Sends STX
Odd Parity Check ?
NO
YES
Sets Test Byte To FFH
Sets Test Byte To 00
Exclusive ORs Test Byte and Sent Data
Test Byte
Sends Data to Printer
Last Data in 1 Block ?
NO
YES
1
1
Sends ENQ
Receives Status
Receives Check Byte
Status Error ?
YES
YES
NO
Check Byte = Test Byte ?
NO
Sends ETX
(Print)
Sends CAN
YES
STX-ETX Mode End
STX-ETX Mode Data Block Ready to Send ?
NO
RET

ESC "t" n

[Function] Selecting the character code table

[Code] <1B>H <74>H n

[Range] 0 ≤ n ≤ 255

[Outline] This command selects Page-n of Character Code Table.

[Default] Depends on DIP switch setting.

n	Character Code Table	N	Character Code Table
0	STAR International	6	Code Page 852 (Eastern Europe)
1	STAR Domestic	7	Code Page 866 (Russia)
2	Code Page 850 (Multilingual)	8	Code Page 857 (Turkey)
3	Code Page 860 (Portugal)	9	Windows Code
4	Code Page 863 (Canada-French)		
5	Code Page 865 (Norway)	255	Space Page (For user setting)

ESC "/" n "data" CR or LF

[Function] Defining the message

[Code] <1B>H <2F>H n "data" CR or LF

[Range] $1 \leq n \leq 10$

[Outline] This command can define up to a 50-byte message in one line. If the value of n is specified beyond the range, the data following n will be treated as the print data.
Once the message is defined, it remains valid until it is redefined. The data should end with CR (0DH) or LF (0AH). If the data exceeds 50 bytes, the subsequent data will be treated as the print data.
Once the message is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.

ESC "DC3" n

[Function] Printing the message

[Code] <1B>H <13>H n

[Range] $1 \leq n \leq 10$

[Function] This command prints a message. If the value of n is specified beyond the range, the message will not be printed.

ESC DC2 n1 n2

[Function] Deleting the download character, message, bit image

[Code] <1B>H <12>H n1 n2

[Range] $0 \leq n1 \leq 3$

$0 \leq n2$ (Specify 0 at n1 = 0)
($1 \leq n2 \leq 10$ at n1 = 1)
($32 \leq n2 \leq 224$ at n1 = 2)
(Specify 0 at n1 = 3)

[Outline] This command deletes the downloaded characters, message, and bit image.

n 1	Object Deleted
0	All(Message, characters, bit image)
1	Download message
2	Download characters
3	Download bit image

With n2, specify which data of the function specified with n1 should be deleted.

n2 = 0 Deletes all the download function specified with n1.

n2≠0 Deletes the data downloaded at the value specified with n2 (Value specified when saving with each download command), of the download function specified with n1.

Note) No meaning when n1 = 0 is set.

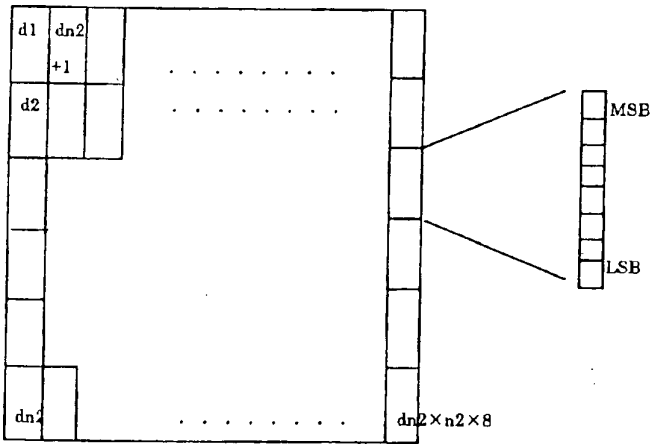
GS "*" n1 n2 [d] n1 × n2 × 8

[Function] Defining the download, bit image

[Code] <1D>H <2A>H <n1> <n2> [<d>] n1 × n2 × 8

[Range] 1 ≤ n1 ≤ 45 0 ≤ n2 ≤ 24
Note) Take care that the number of data(n1×n2×8) is equal to or smaller than 2,048.

[Outline] This command defines the download bit image having the dots specified n1 and n2. The number of horizontal dots is represented by n1 × 8 and that of vertical dots is represented by n2 × 8, respectively. m denotes the number to be registered. (See a download bit image printout.) d denotes the bit image data. Once the download bit image is defined, it remains valid until it is redefined or the download deletion command(ESC DC2 n1 n2) is executed.



GS / m

[Function] Printing the download, bit image

[Code] <1D>H <2F>H m

[Range] 0 ≤ m ≤ 255

[Outline] This command prints the bit image saved in the number specified with m.

[Caution] If the print buffer contains the data, this command will be ignored. If the bit image has not been saved in the specified number, this command will be ignored.
Nothing is printed when m is other than 0,1,2 or 3.

13.3 ESC/POS Commands

13.3.1 Command List

	Command	Function	Code	Page
1	HT	Horizontal tab	09H	84
2	LF	Printing and paper feed	0AH	84
3	CR	Printing	0DH	85
4	ESC " " n	Setting the character right space	1BH 20H n	85
5	ESC ! n	Setting print mode batch	1BH 21H n	86
6	ESC % n	Specifying/Canceling the download character set	1BH 25H n	87
7	ESC & s n m [a[p] s × a]	Defining the download character set	1BH 26H s n m [a[p] a×a] m-n+1	88
8	ESC * m n1 n2 [d] n1 + 256 × n2	Specifying the bit image mode	1BH 2AH m n1 n2 [d] n1 + 256×n2	89
9	ESC 2	Setting the 1/6-inch line feed rate	1BH 32H n	90
10	ESC 3 n	Setting the line feed width in minimum pitch increments	1BH 33H n	90
11	ESC <	NOP	1BH 3CH	
12	ESC @	Initializing the printer	1BH 40H	90
13	ESC D [n] k NUL	Setting the Horizontal tab position	1BH 44H [n] k 00	91
14	ESC J n	NOP	1BH 4AH n	
15	ESC R n	Selecting the international character set	1BH 52H n	92
16	ESC U n	Specifying/Canceling the unidirectional print mode	1BH 55H n	93
17	ESC c 0 n	NOP	1BH 63H 30 n	
18	ESC c 5 n	Selecting the panel switch enable/disable	1BH 63H 35H n	94
19	ESC d n	Printing and n-line paper feed	1BH 64H n	94
20	ESC p m n1 n2	Specifying the pulse generation	1BH 70H m n1 n2	95
21	ESC r n	Selecting the printing color	1BH 72H n	96
22	ESC t n	Selecting the character code table	1BH 74H n	96
23	ESC u n	Sending the status for peripheral device	1BH 75H n	97
24	ESC v	Sending the printer status	1BH 76H	98
25	ESC { n	Specifying/Canceling the inverted character print	1BH 7BH n	99
26	GS E n	NOP	1DH 45H n	
27	ESC / n	Defining the message	1BH 2FH n	99
28	ESC DC3 n	Printing the message	1BH 13H n	100
29	ESC DC2 n1 n2	Deleting the download character, message, bit image	1BH 12H n1 n2	101
30	GS * n1 n2	Defining the download, bit image	1DH 2AH n1 n2	102
31	GS / m	Printing the download, bit image	1DH 2FH m	103

Details

HT

[Function] Horizontal tab

[Code] <09>H

[Outline] This command moves a printing position to the next horizontal tab position. If the next horizontal tab position is not set, this command will be ignored.

[Caution] The horizontal tab position is set by <ESC> D. Initial setting of the horizontal tab position is every 8 characters (9th, 17th, 25th culomns, and so on) of the 7×9 font.

LF

[Function] Printing and paper feed

[Code] <0A>H

[Outline] This command prints one line worth of the data saved in the print buffer and feeds the line based on the set line feed value. The head of the line is assumed to be the next print start position.

CR

[Function] Printing

[Code] <0D>H

[Outline] This command prints the data. If the DIP switch segments 1 to 6 are set to OFF, the printer will print the data in the print buffer and feed the paper by one line. If they are set to ON, the printer will print the data in the print buffer and will not feed the paper.

ESC " " n

[Function] Setting the character right space

[Code] <1B>H <20>H n

[Range] $0 \leq n \leq 32$

[Outline] This command sets the right space of the character.

[Caution] In the double width mode, the right space will be double the set amount. Set the space in increments of half dot.

[Default] n = 0

ESC "!" n

[Function] Setting the print mode batch

[Code] <1B>H <21>H n

[Range] 0 ≤ n ≤ 255

[Outline] Sets the print mode. "n" (Each bit) has the following meanings.

Bit	Function	Values	
		0	1
0	Undefined	–	–
1	Undefined	–	–
2	Undefined	–	–
3	High-lighting	Canceled	Specified
4	Double height	Canceled	Specified
5	Double width	Canceled	Specified
6	Undefined	–	–
7	Underline	Canceled	Specified

[Caution] The entire character print width is underlined, but the portion skipped by HT is not. If both double height and double width are selected, the characters will be quadrupled. If the double width characters are selected, some dots may not be printed depending on the preceding one.
When printing the double height characters, there will be less shear in unidirectional printing.

[Default] n = 0

ESC "%" n

[Function] Specifying/Canceling the download character set

[Code] <1B>H <25>H n

[Range] 0 ≤ n ≤ 255

[Outline] This command selects/deselects the download character set. n is valid only for the least significant bit.
Setting n0 = 1 selects the download character set.
Setting n0 = 0 deselects the download character set.

[Default] n = 0

ESC "&" s n m [a[p] s × a]m - n + 1

[Function] Defining the download character set

[Code] <1B>H <26>H s n m [a[p] ... <ps × a>] m - n + 1

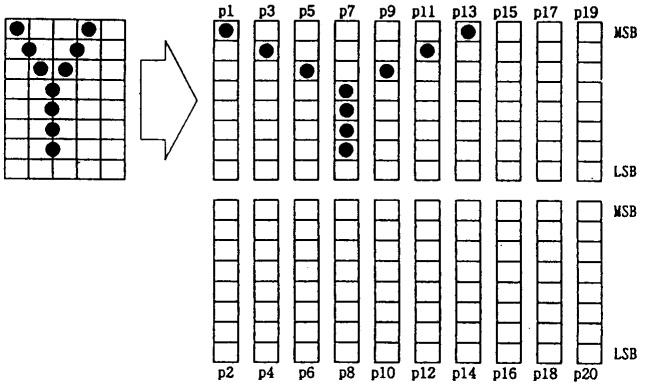
[Range] s = 2
$32 \le n \le m \le 255$
$0 \le a \le 9$
$0 \le p1 \ldots ps \times a \le 255$

[Outline] This command defines the download alphenumerals or Katakana. s denotes the number of bytes in the vertical direction, n the start character code, and m the end character code, respectively. When defining only one character, set n = m.
The 224 ASCII code characters, 32 to 255, are definable. a specifies the number of dots in the horizontal direction to be defined. p is the data you want to define and shows the a-dots worth of pattern in the horizontal direction from the left edge. The remaining pattern on the right side will be a space. Once the download characters are defined, they remain valid until they are redefined or the download deletion command (ESC DC2 n1 n2) is executed.

[Default] Same as the internal character set.

[Caution] The horizontally adjacent dots cannot be printed. The 2nd-byte data in the vertical direction is valid only for the most significant bit.

Example



ESC "*" m n1 n2 [d] n1 + 256 × n2

[Function] Specifying the bit image mode

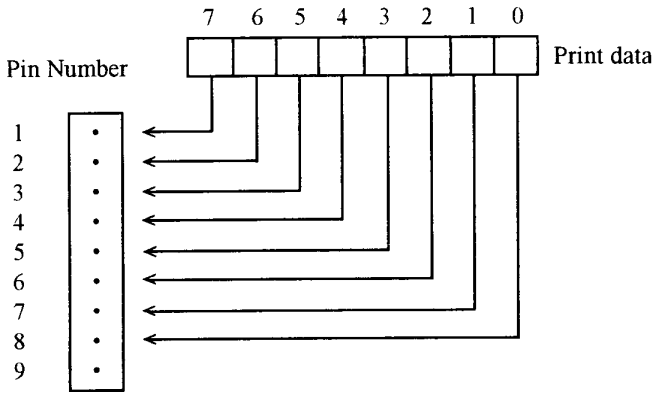
[Code] <1B>H <2A>H m n1 n2 [d] n1 + 256×2

[Range] m = 0, 1
$0 \le n1 \le 255$
$0 \le n2 \le 3$
$0 \le d \le 255$

[Outline] This command specifies the bit image for the mode m as to the number of dots specified with n1 and n2. Divide the number of dots printed by 256 and assume its quotient to be n2 and remainder to be n1. Therefore, the number of horizontal dots will be n1 + 256 × n2. If the bit image data is entered beyond the dot positions printable in one line, the surplus data will be discarded. The following table shows the bit image modes for m.

		Horizontal Direction		
m	Vertical Dots	Dot Density	Adjacent Dot Setting	Total Dots
0	8	Single density	Allowed	189
1	8	Double density	Disallowed	378

[Caution] If the value of m is beyond the conditions, the data subsequent to n1 will be processed as normal data. Normal data processing will be restored after completing bit image print.



ESC "2"

[Function] Setting the 1/6-inch line feed width

[Code] <1B>H <32>H

[Outline] This command sets the line feed width to 1/6 inch.

ESC "3"

[Function] Setting the line feed width in minimum pitch increments

[Code] <1B>H <33>H

[Outline] This command sets the line feed width to n/18 inch.

ESC "@"

[Function] Initializing the printer

[Code] <1B>H <40>H

[Outline] This command cancels various conditions set after power-on to initializes the printer to the conditions having existed at power-on. However, the print buffer, input buffer, and external device drive pulse width are not initialized. The settings of the DIP switch segments are not re-read.

ESC "D" [n]k NUL

[Function] Setting the Horizontal tab position

[Code] <1B>H <44>H [n]k <00>H

[Range] $1 \leq n \leq 255$
$0 \leq k \leq 32$

[Outline] This command sets the horizontal tab position. n denotes the number of columns from the head of the line to the horizontal tab setting position and equals the set column position - 1. k denotes the number of horizontal tab positions to be set. The tab position is set at the character width × n from the head of the line. The character width at this time includes the space to the right of the character; it will be double the normal character width if the double width characters are selected.
The data <n>k denoting the set position is entered in the ascending order and ends with <00>H. ESC D NUL clears all the set tab positions. HT is ignored after clearing.

[Caution] If the data <n>k is equal to or smaller than the preceding data <n>k - 1, it is assumed that horizontal tab setting has been completed. If this is the case, the subsequent data will be processed as normal data.
Up to 16 horizontal tabs can be set. The data beyond this limit are processed as normal ones. If the data <n>k exceeds the one-line print range, set the "set column position = maximum print columns + 1."
Even if the character width is changed after setting the horizontal tab position, the latter will not change.

[Default] 7×9 font, every 8 characters (9th, 17th, 25th column, and so on)

ESC "R" n

[Function] Selecting the international character set

[Code] <1B>H <52>H n

[Range] $0 \leq n \leq 10$

[Outline] This command selects the international characters according to the value of n.

n	Character Set	n	Character Set
0	U.S.A.	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	U.K.	9	Norway
4	Denmark I	10	Denmark II
5	Sweden		

[Default] Depends upon DIP switch setting.

ESC "U" n

[Function] Specifying/Canceling the Unidirectional print mode

[Code] <1B>H <55>H

[Range] $0 \leq n \leq 255$

[Outline] This command selects/deselects unidirectional print. n is valid only for the least significant bit.

n	Function
0	Deselects
1	Selects

[Caution] If unidirectional print is selected, the printer will print from the left to the right. When you want to prevent horizontal shear in printing at high accuracy, specify unidirectional print with this command. (Double height print, etc.)

ESC "c" "5" n

[Function] Selecting the panel switch enable/disable

[Code] <1B>H <63>H <35>H n

[Range] 0 ≤ n ≤ 255

[Outline] This command enables/disables the panel switches. n is valid only for the least significant bit.
Setting n = 1 disables the panel switches.
Setting n = 0 enables the panel switches.

[Caution] If the panel switches are disabled with this command, the LF switch will be disabled. Therefore, the paper cannot be fed by the LF switch.

[Default] n = 0

ESC "d" n

[Function] Printing and n-line paper feed

[Code] <1B>H <64>H n

[Range] 0 ≤ n ≤ 255

[Outline] This command feeds the paper by n-lines after printing the one line worth of data saved in the print buffer.

ESC "p" m n1 n2

[Function] Specifying the pulse generation

[Code] <1B>H <70>H m n1 n2

[Range] $0 \leq m \leq 1$
$0 \leq n1 \leq n2 \leq 255$

[Outline] This command outputs the signals specified with n1 and n2 to the connector pins.

m	Connector Pin
0	Drawer kick connector No. 2 pin
1	Drawer kick connector No. 5 pin

The ON time is n1×2 mS and the OFF time is n2×2 mS.

[Caution] The user should consider driving the drawer at the following duty ratio.
ON time ÷ (ON time + OFF time) ≤ 0.2
(It is recommended to make n2 four times higher or more than n1.)
The drawer kick-out solenoid should have a resistance value of 36Ω or more. Do not use a lower one because an overcurrent will flow. For the drawer power, be sure to use the printer power (Drawer kick-out connector No. 4 pin).

ESC "r" n

[Function] Selecting the printing color

[Code] <1B>H <72>H n

[Range] n = 0, 1

[Outline] This command selects a print color for each line. Setting n = 0 selects black. Setting n = 1 selects red. The command is valid only when it is entered at the head of the line.

[Default] n = 0 (Black print)

ESC "t" n

[Function] Selecting the character code table

[Code] <1B>H <74>H n

[Range] $0 \leq n \leq 255$

[Outline] This command selects Page-n of Character Code Table.

[Default] Depends on DIP switch setting.

n	Character Code Table	N	Character Code Table
0	Code Page 437 (U.S.A.)	6	Code Page 852 (Eastern Europe)
1	Katakana	7	Code Page 866 (Russia)
2	Code Page 850 (Multilingual)	8	Code Page 857 (Turkey)
3	Code Page 860 (Portugal)	9	Windows Code
4	Code Page 863 (Canada-French)		
5	Code Page 865 (Norway)	255	Space Page (For user setting)

ESC "u" n

[Function] Sending the status for peripheral device

[Code] <1B>H <75>H n

[Range] n = 0

[Outline] This commands sends the status of the connector no. 3 pin.

n	Connector Pin
0	Drawer kick-out connector No. 3 pin

Status Sent

Bit	Function	Value	
		0	1
0	No. 3 pin's level	“LOW”	“HIGH”
1	Undefined		
2	Undefined		
3	Undefined		
4	Undefined		
5	Undefined		
6	Undefined		

[Caution] This command is valid only for the serial interface. If nothing is connected to the connector, the bit 0 will be always "1". In case of DTR/DSR control, if the host cannot receive (DSR signal has the Mark status), the printer will wait until it will be ready to receive. In case of XON/XOFF control, only one byte will be sent without confirming the status of the DSR signal. Note that it may take time to send the status after receiving the command.

ESC "v"

[Function] Sending the printer status

[Code] <1B>H <76>H

[Outline] This command sends the printer status.

[Caution] This command is valid only for the serial interface. The following table lists the status sent. In case of DTR/DSR control, only one byte will be sent after confirming that the host is ready to receive (DSR signal has the Space status).
The status at command processing time is sent after processing the data received prior to this command. If the printing is under way when the command is being processed, however, the then status will be sent after completing print feed of that line. Therefore, it may take time to send the status after receiving the command.

Bit	Function	Value	
		0	1
0	Paper near end	With paper	Near end
1	Undefined		
2	Paper near end	With paper	End
3	Undefined		
4	Undefined	0 stationary	–
5	Undefined		
6	Undefined		

ESC "{ " n

[Function] Specifying/Canceling the inverted character print

[Code] <1B>H <7B>H n

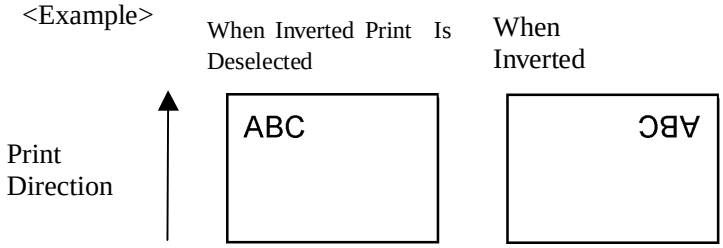
[Range] $0 \leq n \leq 255$

[Outline] This command selects/deselects inverted print. n is valid only for the least significant bit.

n	Type
0	Deselects the inverted characters.
1	Selects the inverted characters.

[Caution] This command is valid only if entered at the head of the line.

[Default] n = 0 <Example>



ESC "/" n "data" CR or LF

[Function] Defining the message

[Code] <1B>H <2F>H n “data” CR or LF

[Range] $1 \leq n \leq 10$

[Outline] This command defines up to a 50-byte message in one line. If the value of n is specified beyond the range, the data following n will be treated as the print data.
Once the message is defined, it remains valid until it is redefined. The data should end with CR (0DH) or LF (0AH). If the data exceeds 50 bytes, the subsequent data will be treated as the print data.
Once the message is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.

ESC DC3 n

[Function] Printing the message

[Code] <1B>H <13>H n

[Range] $1 \leq n \leq 10$

[Function] This command prints a message. If the value of n is specified beyond the range, the message will not be printed.

ESC DC2 n1 n2

[Function] Deleting the download character, message, bit image

[Code] <1B>H <12>H n1 n2

[Range] $0 \leq n1 \leq 3$
$0 \leq n2$ (Specify 0 at n1 = 0)
($1 \leq n2 \leq 10$ at n1 = 1)
($32 \leq n2 \leq 224$ at n1 = 2)
(Specify 0 at n1 = 3)

[Outline] This command deletes the downloaded characters, message, and bit image.

n 1	Object Deleted
0	All(Message, characters, bit image)
1	Download message
2	Download characters
3	Download bit image

With n2, specify which data of the function specified with n1 should be deleted.
n2 = 0 Deletes all the download function specified with n1.
n2≠0 Deletes the data downloaded at the value specified with n2 (Value specified when saving with each download command), of the download function specified with n1.
Note) No meaning when n1 = 0 is set.

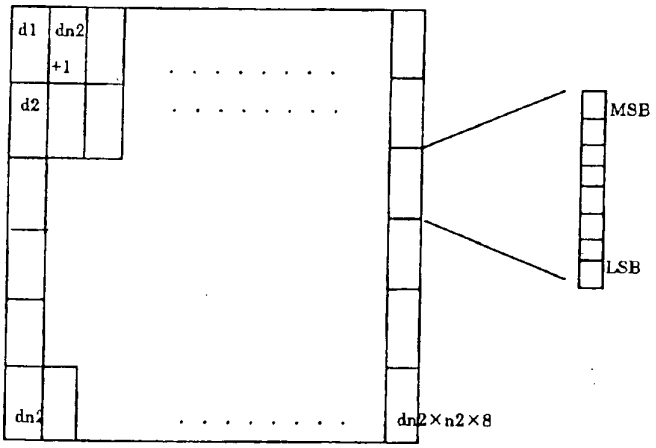
GS "*" n1 n2 [d] n1 × n2 × 8

[Function] Defining the download, bit image

[Code] <1D>H <2A>H <n1> <n2> [<d>] n1 × n2 × 8

[Range] 1 ≤ n1 ≤ 45
0 ≤ n2 ≤ 24
Note) Take care that the number of data(n1×n2×8) is equal to or smaller than 2,048.

[Outline] This command defines the download bit image having the dots specified n1 and n2. The number of horizontal dots is represented by n1×8 and that of vertical dots is represented by n2×8, respectively. m denotes the number to be registered. (See a download bit image printout.) d denotes the bit image data. Once the download bit image is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.



GS / m

[Function] Printing the download, bit image

[Code] <1D>H <2F>H m

[Range] $0 \leq m \leq 255$

[Outline] This command prints the bit image saved in the number specified with m.

[Caution] If the print buffer contains the data, this command will be ignored. If the bit image has not been saved in the specified number, this command will be ignored.
Nothing is printed when m is other than 0, 1, 2 or 3.

14. CHARACTER CODES TABLE

14.1 CBM (Domestic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	‘	p			SP	ー	タ	ミ	円	σ
1		DC1	!	1	A	Q	a	q			。	ア	チ	ム	日	※
2		DC2	“	2	B	R	b	r			「	イ	ツ	メ	月	¢
3		DC3	#	3	C	S	c	s			」	ウ	テ	モ	年	×
4			$	4	D	T	d	t			、	エ	ト	ヤ	↕	∞
5			%	5	E	U	e	u			・	オ	ナ	ユ	≠	±
6			&	6	F	V	f	v			ヲ	カ	ニ	ヨ	θ	÷
7	BEL		‘	7	G	W	g	w			ァ	キ	ヌ	ラ	λ	π
8		CAN	(	8	H	X	h	x			ィ	ク	ネ	リ	φ	
9			)	9	I	Y	i	y			ゥ	ケ	ノ	ル	〒	
A	LF		*	:	J	Z	j	z			ェ	コ	ハ	レ	£	
B		ESC	+	;	K	[	k	{			ォ	サ	ヒ	ロ	℃	
C	FF		、	<	L	¥	l	\|			ャ	シ	フ	ワ	°F	
D	CR		−	=	M	]	m	}			ュ	ス	ヘ	ン	Ω	
E	SO		.	>	N	^	n	～			ョ	セ	ホ	゛	μ	
F	SI		／	?	O	_	o	■			ッ	ソ	マ	゜	Σ	

14.2 CBM (International)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	‘	p			£	Ü	e	û		
1		DC1	!	1	A	Q	a	q			℃	ß	ê	ç		
2		DC2	“	2	B	R	b	r			° F	§	ï	¿		
3		DC3	#	3	C	S	c	s			Ω	a	í	Ñ		
4			$	4	D	T	d	t			μ	o	ì	ñ		
5			%	5	E	U	e	u			Σ	·	ì	E		
6			&	6	F	V	f	v			σ	TL	î	Ↄ		
7	BEL		‘	7	G	W	g	w			x̄	½	ö	¡		
8		CAN	(	8	H	X	h	x			¢	₦	ó	Å		
9			)	9	I	Y	i	y			×	₹	ò	ϕ		
A	LF		*	:	J	Z	j	z			∞	¥	õ	θ		
B		ESC		;	K	[	k	{			±	¼	ô	ä		
C	FF		、	<	L	\	l	\|			÷	Ã	ü	á		
D	CR		—	=	M	]	m	}			π	ë	ú	à		
E	SO		.	>	N	^	n	~			Ä	é	ù	ã		
F	SI		/	?	O	_	o	■			Ö	è	û	â		

14.3 STAR (Domestic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	‘	p	SP	┘	SP	―	タ	ミ	┃	┬
1		DC1	!	1	A	Q	a	q	┃	┌	°	ア	チ	ム	━	━
2	STX	DC2	“	2	B	R	b	r	━	■	┌	イ	ツ	メ	━	━
3	ETX	DC3	#	3	C	S	c	s	┃	■	┘	ウ	テ	モ	┃	━
4		DC4	$	4	D	T	d	t	━	■	、	エ	ト	ヤ	┼	┃
5	ENQ		%	5	E	U	e	u	┃	■	・	オ	ナ	ユ	┘	┃
6			&	6	F	V	f	v	━	／	ヲ	カ	ニ	ヨ	└	┃
7	BEL		‘	7	G	W	g	w	┃	＼	ァ	キ	ヌ	ラ	┐	▚
8		CAN	(	8	H	X	h	x	━	◥	ィ	ク	ネ	リ	■	▞
9	HT		)	9	I	Y	i	y	┃	◤	ゥ	ケ	ノ	ル	▓	◢
A	LF	SUB	*	:	J	Z	j	z	━	┌	ェ	コ	ハ	レ	┴	◣
B	VT	ESC	+	;	K	[	k	{	┃	┴	ォ	サ	ヒ	ロ	←	═
C	FF	FS	、	<	L	¥	l	\|	├	┬	ャ	シ	フ	ワ	↑	‖
D	CR	GS	―	=	M	]	m	}	━	┤	ュ	ス	ヘ	ン	→	╮
E	SO	RS	.	>	N	^	n	～	└	◆	ョ	セ	ホ	“	↓	╯
F	SI		／	?	O	_	o	▓	┐	×	ッ	ソ	マ	・	╭	╰

14.4 STAR (International)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	‘	p	SP	┘	Ä	é	ù	ã	┃	┬
1		DC1	!	1	A	Q	a	q	┃	┌	Ö	è	û	â	━	─
2	STX	DC2	“	2	B	R	b	r	─	■	Ü	e	û	°	━	─
3	ETX	DC3	#	3	C	S	c	s	┃	■	ß	ê	ç	℃	┃	─
4		DC4	$	4	D	T	d	t	─	■	§	ï	¿	° F	┼	┃
5	ENQ		%	5	E	U	e	u	┃	■	a	í	Ñ	Ω	┘	┃
6			&	6	F	V	f	v	─	／	o	ì	ñ	μ	└	┃
7	BEL		‘	7	G	W	g	w	┃	＼	£	ì	E	Σ	┐	▚
8		CAN	(	8	H	X	h	x	─	◥	¢	î	Ↄ	σ	■	▞
9	HT		)	9	I	Y	i	y	┃	◤	½	ö	¡	x̄	▓	◢
A	LF	SUB	*	:	J	Z	j	z	─	┌	₦	ó	Å	₺	┴	◣
B	VT	ESC	+	;	K	[	k	{	┃	┴	₮	ò	φ	×	←	═
C	FF	FS	、	<	L	＼	l	｜	├	┬	¥	õ	θ	∞	↑	‖
D	CR	GS	−	=	M	]	m	}	─	┤	¼	ô	ä	±	→	⌟
E	SO	RS	.	>	N	^	n	~	└	◆	Ã	ü	á	÷	↓	⌟
F	SI		／	?	O	_	o	■	┐	×	ë	ú	à	π	⌜	⌝

14.5 Code Page 437

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
Ç	É	á	▒	└	╨	α	≡
ü	æ	í	▒	┴	╤	β	±
é	Æ	ó	▒	┬	╥	Γ	≥
â	ô	ú	┤	├	╙	π	≤
ä	ö	ñ	┤	─	╘	Σ	⌠
à	ò	Ñ	╡	┼	╒	σ	⌡
ä	û	ª	╢	╞	╓	μ	÷
ç	ù	º	╖	╟	╫	τ	≈
ê	ÿ	¿	╕	╚	╪	Φ	°
ë	Ö	⌐	╣	╔	┘	Θ	•
è	Ü	¬	║	╩	┌	Ω	·
ï	¢	½	╗	╦	■	δ	√
î	£	¼	╝	╠	▬	∞	ⁿ
ì	¥	¡	╜	═	▌	ϕ	²
Ä	Pt	«	╛	╬	▐	ε	■
Å	ƒ	»	┐	╧	▄	∩	

14.6 Katakana

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	‘	p	▁	┴	SP	―	タ	ミ	―	×
1		XON	!	1	A	Q	a	q	▂	┬	°	ア	チ	ム	┣	円
2			“	2	B	R	b	r	▃	┤	｢	イ	ツ	メ	╋	年
3		XOF	#	3	C	S	c	s	▄	├	｣	ウ	テ	モ	┫	月
4			$	4	D	T	d	t	▅	―	、	エ	ト	ヤ	◢	日
5			%	5	E	U	e	u	▆	‗	・	オ	ナ	ユ	◣	時
6			&	6	F	V	f	v	▇	｜	ヲ	カ	ニ	ヨ	◥	分
7			‘	7	G	W	g	w	▇	｜	ｧ	キ	ヌ	ラ	◤	秒
8			(	8	H	X	h	x	▏	┌	ｨ	ク	ネ	リ	♠	〒
9	HT		)	9	I	Y	i	y	▌	┐	ｩ	ケ	ノ	ル	♥	市
A	LF		*	:	J	Z	j	z	▌	└	ｪ	コ	ハ	レ	◆	区
B		ESC	+	;	K	[	k	{	▉	┘	ｫ	サ	ヒ	ロ	♣	町
C		FS	、	<	L	¥	l	\|	▉	｢	ｬ	シ	フ	ワ	●	村
D	CR	GS	―	=	M	]	m	}	▉	｣	ｭ	ス	ヘ	ン	○	人
E			.	>	N	^	n	～	▉	､	ｮ	セ	ホ	“	／	▓
F			／	?	O	_	o	SP	＋	･	ｯ	ソ	マ	°	＼	SP

14.7 Code Page 850

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
Ç	É	á	▒	└	ð	Ó	
ü	æ	´	▓	┴	Ð	ß	±
é	Æ	ó	│	┬	Ê	Ô	=
â	ô	ú	┤	├	Ë	Ò	¾
ä	ö	ñ	╡	─	E	õ	¶
à	ò	Ñ	Á	┼	ı	Õ	§
a	û	ª	Â	ã	Í	µ	÷
ç	u	º	A	Ã	Î	þ	¸
ê	ÿ	¿	╣	╚	Ï	Þ	°
ë	Ö	®	║	╔	┘	Ú	¨
è	Ü	¬	╗	╩	┌	Û	•
¨	ø	½	╝	╦	█	U	¹
^	£	¼	╜	╠	▬	ý	³
	Ø	¡	¢	═	¦	Ý	²
Ä	×	«	¥	╬	I	¯	■
A	ƒ	»	┐	¤	▬	´	

14.8 Code Page 860

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
Ç	É	á	▒	└	╨	α	≡
ü	A	´	▒	┴	╤	β	±
é	E	ó	▒	┬	╥	Γ	≥
â	ô	ú	┤	├	╙	π	≤
ã	õ	ñ	┤	─	╘	Σ	⌠
a	o	Ñ	╡	┼	╒	σ	⌡
Á	Ú	ª	╢	╞	╓	µ	÷
ç	u	º	╖	╟	╫	τ	≈
ê	I	¿	╕	╚	╪	Φ	°
Ê	Õ	O	╣	╔	┘	Θ	•
e	Ü	¬	║	╩	┌	Ω	·
Í	¢	½	╗	╦	■	δ	√
Ô	£	¼	╝	╠	▬	∞	n
	U	¡	╜	═	▌	ϕ	2
Ã	Pt	«	╛	╬	▐	ε	■
Â	Ó	»	┐	╧	▬	∩	

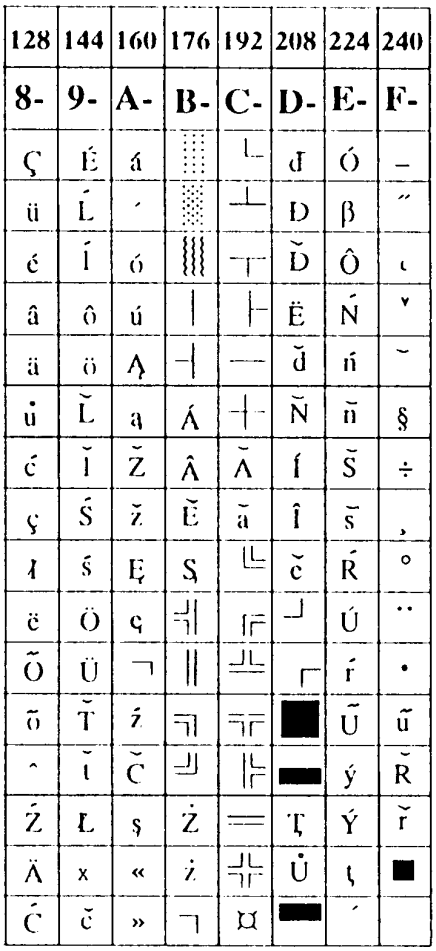
14.9 Code Page 863

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
Ç	É	¦	⣿	└	╨	α	≡
ü	E	´	⣿	┴	═	β	±
ć	Ê	ó	⣿	┬	╤	Γ	≥
â	ô	ú	⣿	├	╙	π	≤
Â	Ë	¨	⣿	─	╘	Σ	⌠
a	Ï	¸	⣿	┼	╒	σ	⌡
¶	û	³	⣿	╞	╓	µ	÷
ç	u	¯	⣿	╟	╫	τ	≈
ê	¤	Î	⣿	╚	╪	Φ	°
ë	Ô	⌐	⣿	╔	┘	Θ	•
e	Ü	¬	⣿	╩	┌	Ω	·
¨	¢	½	⣿	╦	■	δ	√
^	£	¼	⣿	╠	▬	∞	n
=	U	¾	⣿	═	▌	ϕ	2
A	Û	«	⣿	╬	▐	ε	■
§	ƒ	»	⣿	╧	▄	∩	

14.10 Code Page 865

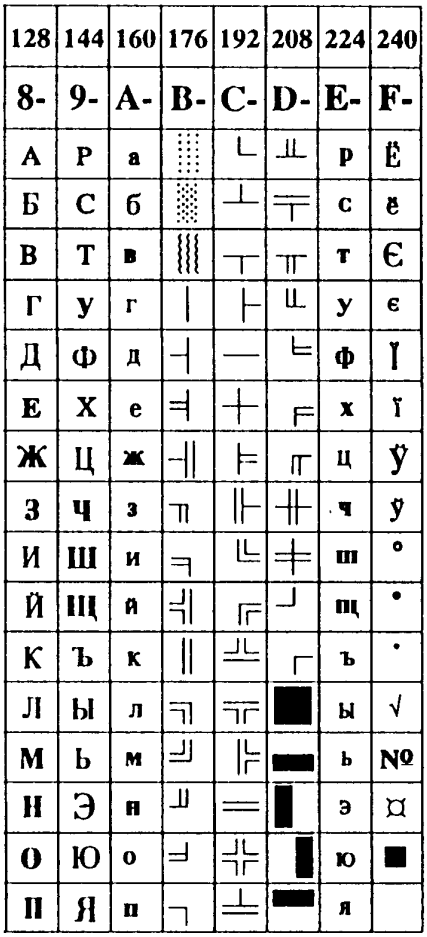
128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
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14.11 Code Page 852



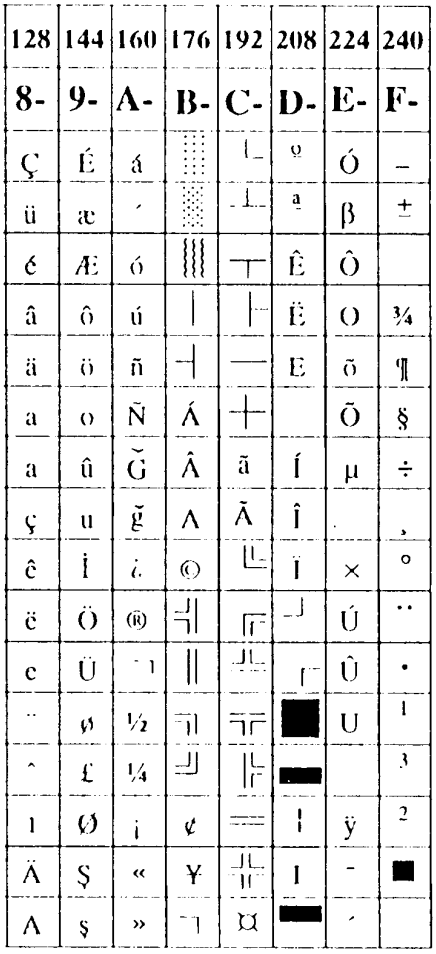
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14.12 Code Page 866



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14.13 Code Page 857



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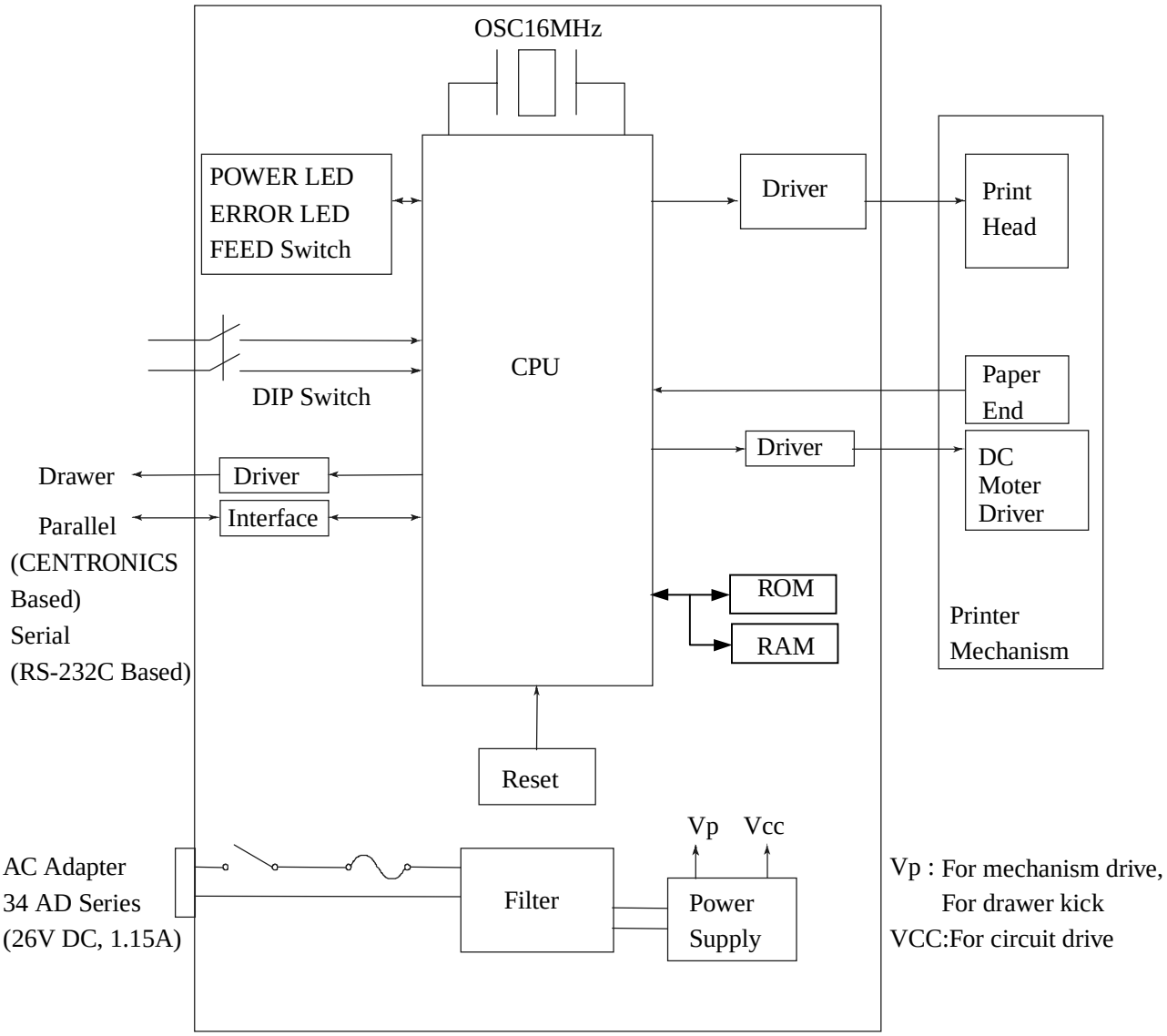
14.14 Windows Code

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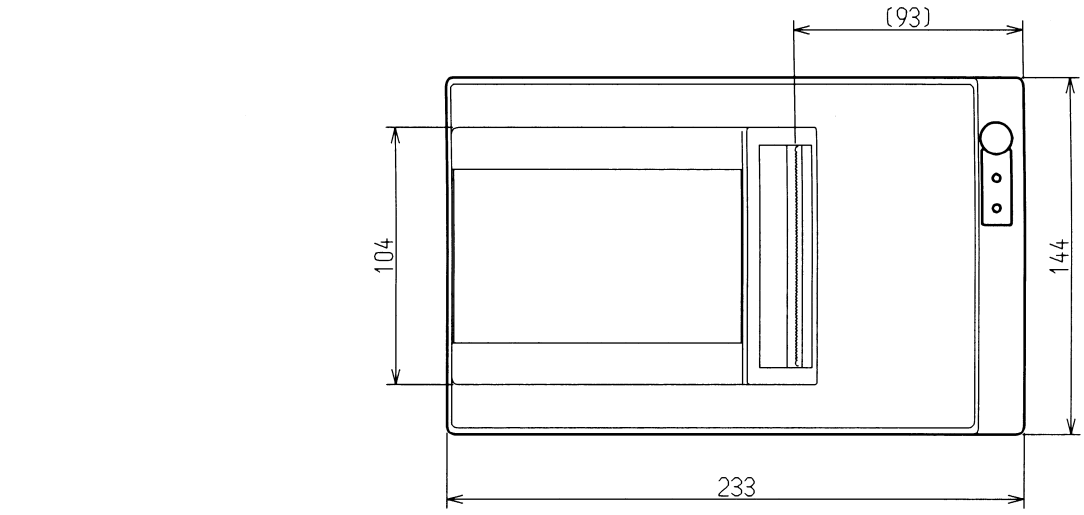
14.15 International Character Codes Table

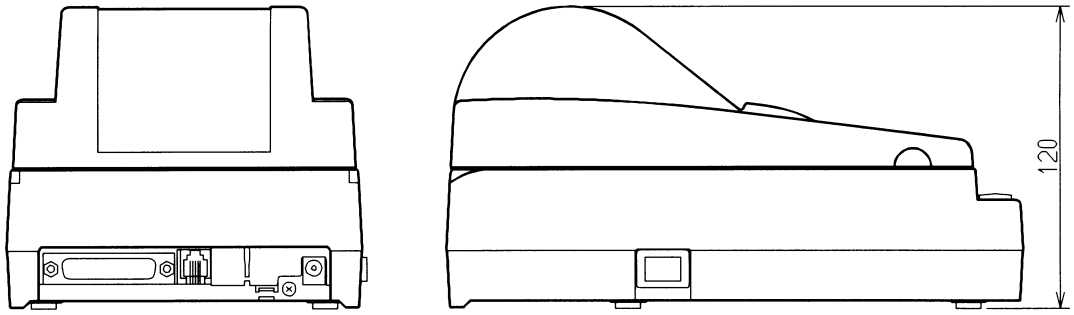
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3	U.K.	£	$	@	[	\	]	^	‘	{	\|	}	~
4	Denmark 1	#	$	@	Æ	Ø	Å	^	‘	æ	ø	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
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APPENDIX 1. BLOCK DIAGRAM



APPENDIX 2. OUTLINE DRAWING





<<<German>>>

<VORSICHT>

1. Bitte lesen Sie die Bedienungsanleitung vor dem Betrieb des Geräts aufmerksam durch und bewahren Sie die Anleitung anschließend für späteres Nachschlagen an einem sicheren Platz auf.
2. Änderungen des Inhalts dieser Anleitung bleiben ohne Vorankündigung vorbehalten.
3. Die Vervielfältigung dieser Bedienungsanleitung ohne vorherige Genehmigung verstößt, auch auszugsweise, gegen das Urheberschutzrecht.
4. Niemals versuchen, in dieser Anleitung nicht erwähnte Geräteteile eigenhändig zu warten, zerlegen oder zu reparieren.
5. Bitte beachten Sie, daß wir keinerlei Haftung für Schäden übernehmen, die auf unsächgemäße Bedienung, falsche Handhabung oder eine ungeeignete Betriebsumgebung zurückzuführen sind.
6. Zur Vermeidung von Unfällen und sonstigen Problemen ist das Gerät ausschließlich auf die in der Bedienungsanleitung beschriebene Weise zu betreiben.
7. Daten sind grundsätzlich temporär, d.h. sie können nicht permanent gesichert oder über längere Zeit gespeichert werden. Es sei deshalb darauf hingewiesen, daß wir für finanzielle Schäden oder Profitrückgänge als Folge von Datenverlust, Unfällen, Reparaturen, Tests usw. keinerlei Haftung übernehmen.
8. Bitte wenden Sie sich mit Fragen oder Hinweisen auf Fehler oder Auslassungen im Text dieser Anleitung an unsere Geschäftsstelle.
9. Beachten Sie jedoch, daß wir, ungeachtet des obigen Punkts 8, keinerlei Haftung für negative Folgeerscheinungen im Zusammenhang mit dem Betrieb dieses Geräts übernehmen.

ZU BEACHTENDE SICHERHEITSMASSREGELN

Zur Vermeidung von Gefahren gegenüber dem Bediener und anderen Personen und Sachschäden sind die folgenden Vorsichtsmaßregeln unbedingt zu beachten.

- Der folgende Text beschreibt das Ausmaß der Gefahren und potentiellen Sachschäden, die durch eine Mißachtung der Bedienungshinweise oder durch die unsachgemäße Handhabung des Geräts entstehen können.

⚠ **WARNUNG**	Die Mißachtung dieser Vorsichtsmaßregel kann zu Körperverletzungen mit möglicher Todesfolge führen.
⚠ **VORSICHT**	Die Mißachtung dieser Vorsichtsmaßregel kann zu Körperverletzungen oder Sachschäden führen.

⚠ Dieses Symbol ruft den Bediener zu erhöhter Wachsamkeit auf.

ⓘ Dieses Symbol weist auf wichtige Informationen, wie z.B. Bedienungsschritte oder dergleichen, hin.

⚠ WARNUNG

- Beim Betrieb des Geräts sind die nachfolgenden Vorsichtsmaßregeln unbedingt zu beachten. Eine Mißachtung dieser Hinweise kann zu Schäden, Funktionsstörungen, Rauchentwicklung und Brandgefahr durch Überhitzen und zu elektrischen Schlägen führen.
 Der fortgesetzte Betrieb des Geräts in anormalem Zustand, wie z.B. nach einer Beschädigung, kann Funktionsstörungen, Rauchentwicklung, fremde Gerüche/Geräusche und Brände verursachen. Bei anormalem Betriebszustand das Gerät sofort ausschalten und an einen Fachhändler wenden. Niemals versuchen, das Gerät eigenhändig zu reparieren, um ernsthafte Gefahren zu vermeiden.
- Das Gerät vor starken Stößen und Erschütterungen, wie z.B. Tritte, Stampfen, Schläge, Herunterfallen usw., schützen.
- Das Gerät an einem gut belüfteten Platz aufstellen, und darauf achten, die Belüftungsöffnung nicht zu blockieren.
- Bei der Aufstellung des Geräts Plätze vermeiden, an denen chemische Reaktionen auftreten, wie z.B. in einem Labor, sowie Plätze mit salz- oder gashaltiger Umgebungsluft.
- Netz- und Datenkabel niemals am Kabel haltend anschließen oder abziehen. Bei Betrieb, Verrücken oder Tragen des Geräts darauf achten, daß die Kabel keiner Gewalteinwirkung ausgesetzt sind.
- Darauf achten, daß keine Fremdköper, wie z.B. Nadeln oder Büroklammern, in das Gerät gelangen.
- Darauf achten, keine Flüssigkeiten auf dem Gerät zu vergießen oder chemische Substanzen enthaltende Sprays darüber zu versprühen. Bei versehentlichem Naßwerden das Gerät sofort ausschalten, das Stromanschlußkabel abziehen, das Netzkabel von der Steckdose trennen usw. und an einen Fachhändler wenden.
- Das Gerät niemals eigenhändig zerlegen oder modifizieren. Eine Mißachtung dieser Vorsichtsmaßregel kann zu Bränden und elektrischen Schlägen führen.
- Das Netzteil bei versehentlichem Herunterfallen sofort von der Steckdose trennen und sich an einen Fachhändler wenden. Der fortgesetzte Betrieb in diesem Zustand kann Brände und elektrische Schläge verursachen.
- Sollte unbeabsichtigt Wasser in das Gerät eindringen, sofort den Netzstecker abziehen und an einen Fachhändler wenden. Der fortgesetzte Betrieb in diesem Zustand kann zu Bränden und elektrischen Schlägen führen.
- Das Gerät ausschließlich mit der vorgeschriebenen Netzspannung betreiben. Eine Mißachtung dieser Vorsichtsmaßregel kann Brände, elektrische Schläge und Funktionsstörungen verursachen.
- Das Kabel des Netzteils niemals beschädigen, knicken, modifizieren, biegen, verdrehen, bündeln oder gewaltsam daran ziehen. Das Kabel darüber hinaus von Wärmequellen fernhalten und keine schweren Gegenstände darauf stellen. Ein beschädigtes Netzteil kann Brände, elektrische Schläge und Funktionsstörungen verursachen.
- Wenden Sie sich bei einer Beschädigung des Netzteilkabels bitte an unsere Kundendienstvertretung.
- Das Netzteil niemals mit nassen Händen anschließen oder trennen. Hierdurch können Brände, elektrische Schläge und sonstige Probleme entstehen.
- Verpackungsbeutel sind vorschriftsgemäß zu entsorgen oder ansonsten von Kindern fernzuhalten. Kleinkinder können durch Überstreifen eines Plastikbeutels ersticken.

⚠ VORSICHTSMASSREGELN FÜR DIE AUFSTELLUNG

- Das Gerät nicht an Plätzen abstellen oder betreiben, an denen es Feuer, Feuchtigkeit oder direkter Sonnenbestrahlung ausgesetzt ist. Ebenso sind Plätze in der Nähe von Heizkörpern und sonstigen Wärmenquellen zu vermeiden, an denen Umgebungstemperatur und Luftfeuchtigkeit nicht den vorgeschriebenen Betriebsbedingungen entsprechen, sowie Plätze, an denen das Gerät Öl, Metallspänen oder Staub ausgesetzt ist. Andernfalls können Funktionsstörungen sowie Rauch- und Brandentwicklung die Folge sein.
- Bei der Aufstellung des Geräts Plätze vermeiden, an denen chemische Reaktionen auftreten, wie z.B. in einem Labor, sowie Plätze mit salz- oder gashaltiger Umgebungsluft. Hierbei besteht die Gefahr von Bränden und elektrischen Schlägen.
- Keine schweren Gegenstände auf den Drucker stellen, um mögliche Probleme zu vermeiden.
- Das Gerät nicht in der Nähe eines Radios oder Fernsehers verwenden und nicht zusammen mit einem Radio oder Fernseher an die gleiche Steckdose anschließen. Hierdurch können Empfangsstörungen auftreten.
- Das Gerät ausschließlich mit der vorgeschriebenen Netzspannung und -frequenz betreiben. Eine Mißachtung dieser Vorsichtsmaßregel kann Brände, elektrische Schläge und Funktionsstörungen verursachen.
- Vergewissern, daß die für den Anschluß des Netzkabels verwendete Steckdose über eine ausreichende Kapazität verfügt.
- Darauf achten, eine einzelne Steckdose nicht durch den Anschluß des Netzkabels zu überlasten. Andernfalls können Brände und Stromausfälle die Folge sein. Darüber hinaus nicht fest auf das Netzkabel treten oder schwere Gegenstände darauf abstellen.
- Erdungskabel niemals an ein Gasrohr anschließen, da hierbei Explosionsgefahr besteht. Vor dem Anschließen oder Trennen eines Erdungskabels unbedingt zuerst den Netzstecker aus der Steckdose ziehen.
- Beim Anschließen oder Trennen der Kabel zuerst die Netzversorgung ausschalten, einschließlich der angeschlossenen Seite, und dann an Stecker und Steckdose haltend anschließen bzw. trennen. Bei einem Transport des Geräts darauf achten, daß das Kabel keinem Zug ausgesetzt ist.
- Steckerkabel sind fest anzuschließen. Durch Anschluß mit umgekehrter Polarität können Innenbauteile oder Paßflächen beschädigt werden.
- Für Datensignalleitungen abgeschirmte Kabel oder verzwirbelte Doppeladerkabel verwenden, um Rauschstörungen möglichst gering zu halten. Der Anschluß an ein Rauschstörungen erzeugendes Gerät ist zu vermeiden.
- Falls ein Geldschubladen-Ausschubmechanismusstecker vorhanden ist, sollten keine anderen Vorrichtungen, die nicht den vorgeschriebenen Solenoidspezifikationen entsprechen, angeschlossen werden. Eine Mißachtung dieser Vorsichtsmaßregel kann zu Fehlfunktionen führen.
- Das Gerät an einem Platz in der Nähe einer Steckdose betreiben, wo sich der Netzstecker zum Unterbrechen der Stromversorgung jederzeit schnell und mühelos abziehen läßt.
- Das Netzkabel aus der Steckdose ziehen, wenn das Gerät längere Zeit lang nicht benutzt werden soll.
- Vor einem Transport die Papierrolle aus dem Gerät herausnehmen.
- Das Gerät auf einer ebenen, stabilen Tischplatte an einem gut belüfteten Platz und frei von Erschütterungen aufstellen. (Darauf achten, die Belüftungsöffnung nicht zu blockieren.)

⚠ VORSICHTSMASSREGELN FÜR DIE HANDHABUNG

Zur Vermeidung von Problemen sind bei der Handhabung des Geräts die folgenden Vorsichtsmaßregeln zu beachten.

- Für die Stromversorgung ausschließlich das vorgeschriebene Netzteil verwenden.
- Den Druckbetrieb nicht ohne eingelegtes Papier oder ohne Farbband starten, da hierdurch der Druckkopf beschädigt werden kann.
- Darauf achten, daß keine Fremdköper, wie z.B. Nadeln, Büroklammern oder Schrauben, in das Gehäuse gelangen.
- Darauf achten, keine Flüssigkeiten auf dem Gerät zu vergießen oder chemische Substanzen enthaltende Sprays darüber zu versprühen.
- Das Gerät vor starken Stößen und Erschütterungen bewahren und nicht fallen lassen.
- Niemals mit spitzen Objekten, wie z.B. einem Kugelschreiber, auf das Bedienfeld drücken.
- Papierblätter niemals zum fortlaufenden Drucken mit Klebestreifen zusammenkleben.
- Ein bereits eingezogenes Blatt niemals gewaltsam herausziehen. Beim Öffnen/Schließen der Druckerabdeckung darauf achten, daß sich das Papier nicht verfängt.

Zur Vermeidung von Verletzungen und Schäden

- Den druckenden Abschnitt des Druckkopfes nicht berühren.
- Bei Einschalten keine beweglichen Teile, wie z.B. Schneidklinge und Zahnrad im Druckergehäuse, oder elektrische Teile berühren.
- Darauf achten, körperliche Verletzungen und die Beschädigung anderer Objekte durch scharfe Kanten zu vermeiden.
- Bei Auftreten jeglicher Störungen während des Betriebs den Drucker sofort ausschalten, und das Netzkabel aus der Steckdose ziehen.
- Die Beseitigung von Betriebsstörungen ist qualifiziertem Fachpersonal zu überlassen. Niemals versuchen, das Gerät eigenhändig zu zerlegen.
- Beim Öffnen/Schließen der Druckerabdeckung darauf achten, nicht die Hand oder Finger am Drucker einzuklemmen.

TÄGLICHE WARTUNG

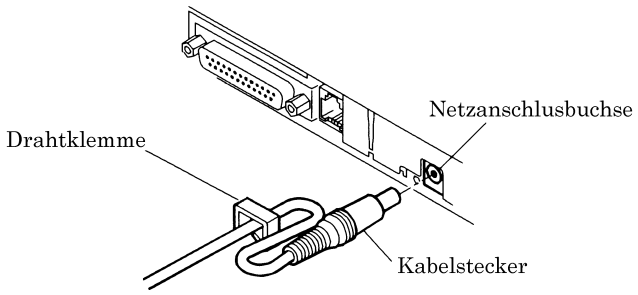
- Vor der Wartung zuerst den Drucker ausschalten.
- Schmutz und Staub mit einem trockenen, weichen Tuch vom Druckergehäuse abwischen. Bei starker Verschmutzung einen Lappen in Wasser anfeuchten, auswringen und damit abwischen. Hierzu niemals flüchtige organische Lösungsmittel, wie z.B. Alkohol, Terpentin, Trichlorethan, Benzol, Keton oder chemische Staubentfernungsmittel, verwenden.
- Papierstaub mit einer weichen Bürste vom Gehäuse entfernen.

4. BETRIEB

4.1 Anschluß des Netzteils

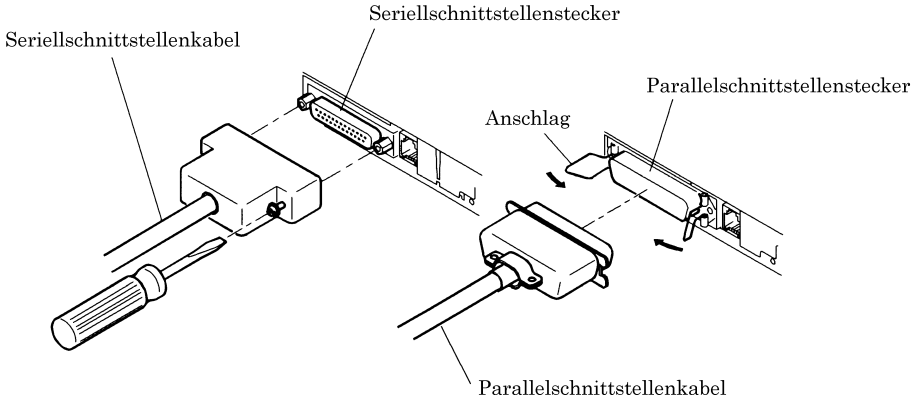
1. Den Netzschalter drücken.
2. Den Kabelstecker des Netzteils an die Netzanschlußbuchse an der Rückwand des Druckers anschließen.
3. Um Anschlußunterbrechungen vorzubeugen, den Kabelstecker, wie in der untenstehenden Abbildung gezeigt, mit Drahtklemmen sichern.
4. Den Netzstecker des Netzteils an eine Wandsteckdose anschließen.

⚠ **VORSICHT**:
- Ausschließlich das vorgeschriebene Netzteil verwenden.
- Das Netzteil nicht zusammen mit Geräten, die Rauschstörungen erzeugen, an die gleiche Steckdose anschließen.
- Das Zubehör-Netzteil nicht für den Anschluß anderer Geräte oder Vorrichtungen, sondern ausschließlich für diesen Drucker, verwenden.
- Beim Trennen des Netzteils von der Steckdose stets am Stecker anfassen; niemals am Kabel ziehen.
- Durch Ziehen am Netzadapter-Anschlußkabel können Schäden entstehen, die zu Bränden, elektrischen Schlägen oder gebrochenen Kabeldrähte führen.
- Bei einem Gewitter sollte das Netzteil von der Steckdose getrennt und der Drucker nicht verwendet werden. Ein Blitzschlag kann Brände und elektrische Schläge auslösen.
- Das Netzteil-Anschlußkabel von Wärmequellen fernhalten. Die Kabelisolierung kann schmelzen und Brände und elektrische Schläge verursachen.
- Wenn der Drucker längere Zeit lang nicht benutzt wird, sollte das Netzteil aus Sicherheitsgründen von der Steckdose getrennt werden.



4.2 Anschluß des Schnittstellenkabels

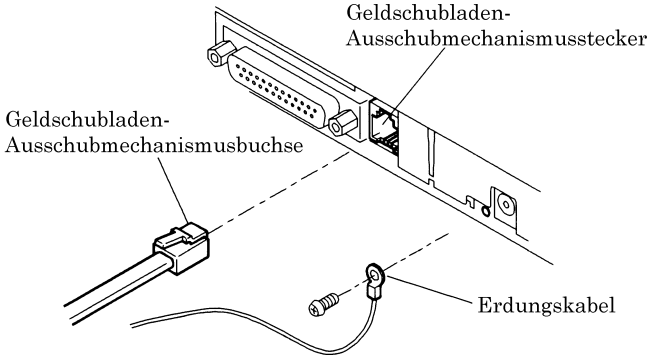
1. Den Drucker (einschließlich angeschlossene Geräte) ausschalten.
2. Den Kabelstecker korrekt ausgerichtet (Ober- und Unterseite prüfen) an die Schnittstellenbuchse anschließen.
3. Die Kabelstecker befestigen:
 - Seriellschnittstelle: durch Festziehen der Schrauben sichern.
 - Parallelschnittstelle: durch Drehen des Anschlags sichern.
 - DIN-Minischnittstelle: bis zum Einrasten einschieben.
4. Das Kabel an einen Computer anschließen.



4.3 Anschluß des Ausschubmechanismussteckers der Geldschublade

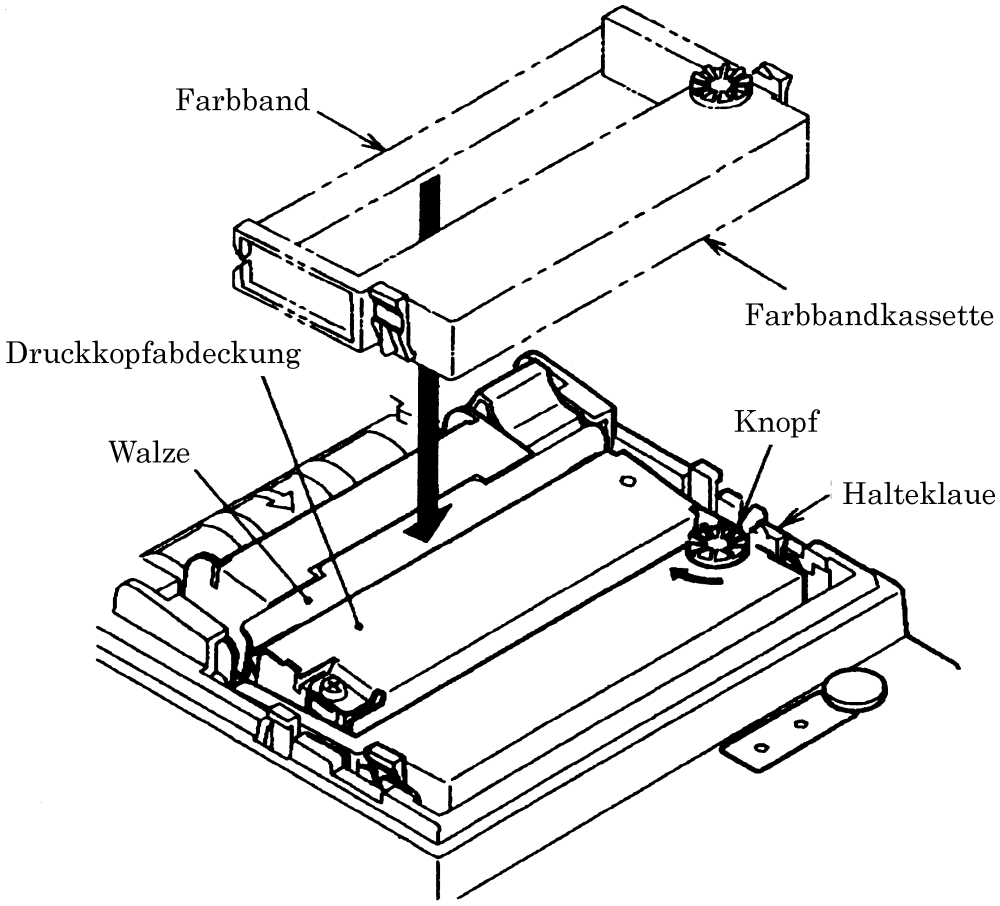
1. Den Drucker mit dem Netzversorgung ausschalten.
2. Den Ausschubmechanismusstecker korrekt ausgerichtet (Ober- und Unterseite prüfen) an die Geldschubladen-Ausschubmechanismusbuchse an der Rückwand des Druckers anschließen.
3. Das Erdungskabel der Geldschublade an das Erdungsterminal am Drucker anschließen.

⚠ **VORSICHT**: Ausschließlich die vorgeschriebene Geldschublade (Solenoid) an den Ausschubmechanismusstecker anschließen.



4.4 Einsetzen der Farbbandkassette

1. Die Druckerabdeckung aufklappen.
2. Bei schlaffem Farbband den Knopf in Pfeilrichtung drehen, um das Band vor dem Einsetzen der Kassette straff zu wickeln.
3. Die Farbbandkassette zwischen Druckkopfabdeckung und Walze einsetzen und gleichzeitig die Halteklauen in den Halter des Druckers drücken.
4. Das Farbband durch Drehen des Farbband-Kassettenknopfes in Pfeilrichtung straff wickeln.
5. Zum Herausnehmen der Farbbandkassette die Halteklauen an beiden Seiten zur Seite kippen und die Kassette anheben.

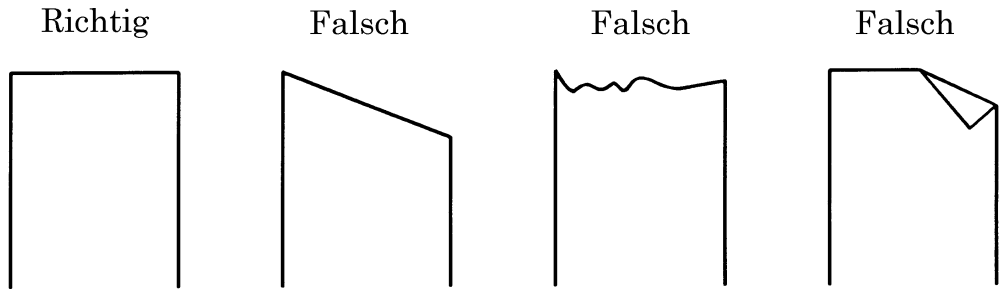


4.5 Einlegen der Papierrolle

1. Mit den Fingern in die Aussparungen an beiden Seiten der Druckerabdeckung greifen, und die Abdeckung durch Anheben bis zum Anschlag öffnen.
2. Das Ende des Druckpapiers in nahezu rechtem Winkel abschneiden.

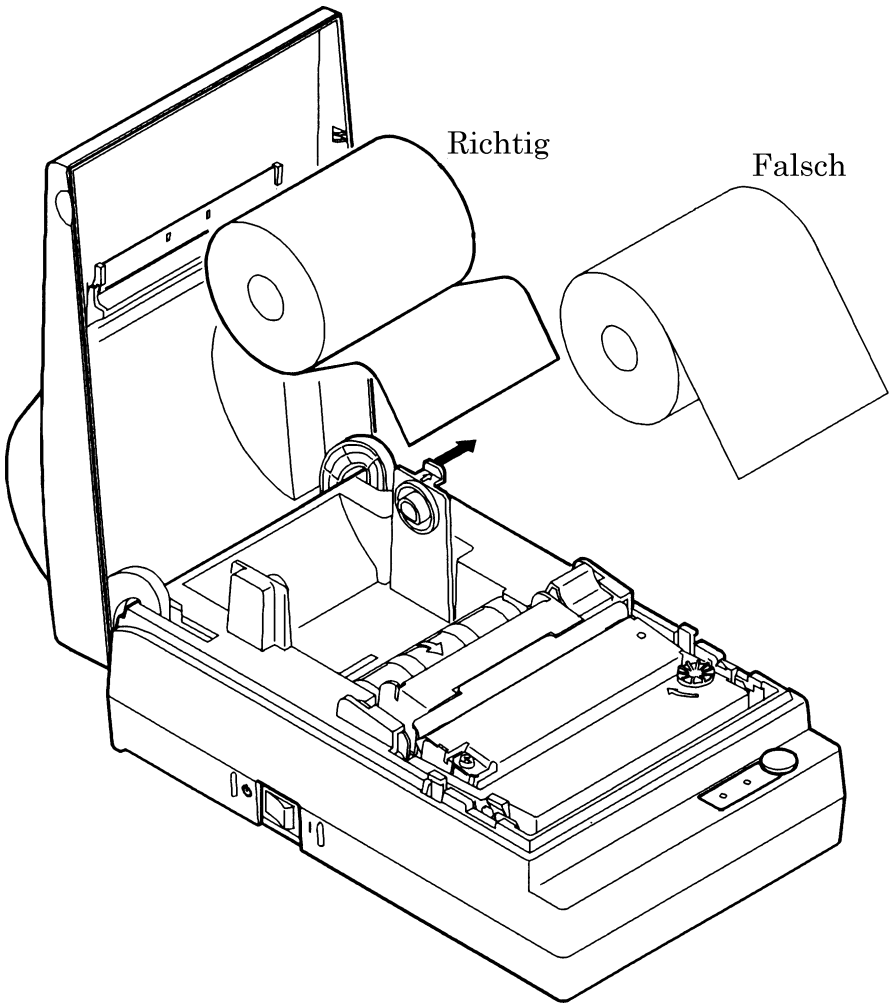
⚠ **VORSICHT**:
- Ausschließlich das vorgeschriebene Druckpapier verwenden.
- Die Verwendung anderer Papiersorten kann zur Minderung der Druckqualität und zu reduzierter Betriebslebensdauer des Druckers führen.
- Die Druckerabdeckung ist nicht abnehmbar und sollte deshalb nicht über den Anschlag hinaus aufgeklappt werden.
- Beim Einführen des Druckpapiers darauf achten, daß das Papierende nicht zerknittert oder geknickt ist.

3. Die Aufrollrichtung des Papiers prüfen.



4. Den Papierhalter öffnen und die Druckpapierrolle in der Mitte aufsetzen.
5. Den Drucker einschalten.
6. Das Papierende gerade in die Papiereinzugöffnung einführen (durch einen Pfeil an der Gehäusevorderseite angezeigt).
7. Das Druckpapier wird automatisch in den Drucker eingezogen, bis das Papierende aus der Papierauslauföffnung herauskommt.
8. Die Druckerabdeckung schließen und überschüssiges Papier an der Schneidklinge abreißen.

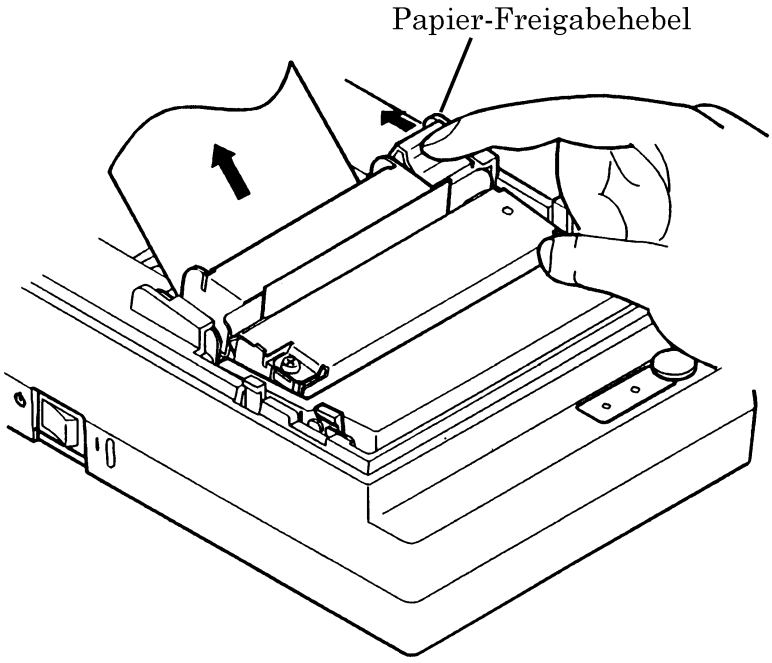
⚠ **VORSICHT**:
- Schlaffes Druckpapier durch Zurückdrehen der Papierrolle straffen.
- Bei schräg eingesetztem Druckpapier den Papier-Freigabehebels drücken und das Papier gerade richten.
- Die Druckerabdeckung niemals während des Druckens öffnen, da hierdurch Papierstaus entstehen können.



4.6 Entfernen des restlichen Druckpapiers

1. Die Druckerabdeckung aufklappen.
2. Den Papier-Freigabehebel in Pfeilrichtung drücken und das Rollenpapier herausziehen.

⚠ **VORSICHT**: Beim Herausziehen des Druckpapiers (in Vorwärts- oder Rückwärtsrichtung) darauf achten, den Papier-Freigabehebel zu betätigen.



4.7 Beseitigung von Papierstaus

1. Die Druckerabdeckung aufklappen.
2. Das Druckpapier vor der Papiereinzugöffnung sauber abschneiden.
3. Den Papier-Freigabehebel in Pfeilrichtung drücken. Hierdurch wird die Papiervorschubwalze zurückgesetzt und das Papier freigegeben, so daß angestautes Papier beseitigt werden kann.
4. Sämtliche Papierreste aus dem Papierweg entfernen.

⚠ **VORSICHT**:
- Beim Herausziehen des Druckpapiers (in Vorwärts- oder Rückwärtsrichtung) darauf achten, den Papier-Freigabehebel zu betätigen.

4.8 Bedienfeld und Fehleranzeigelämpchen

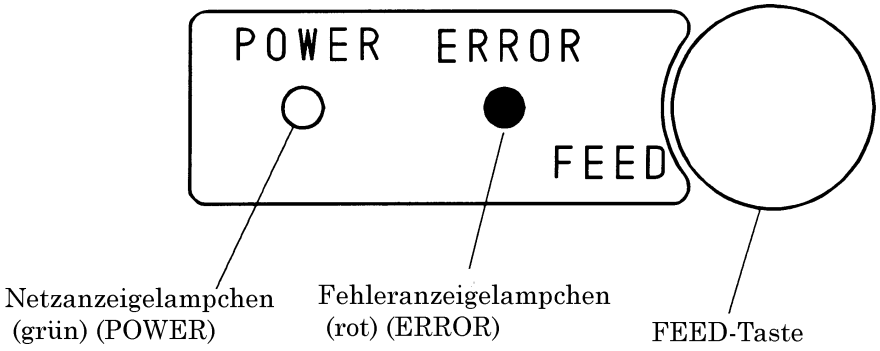
1. Netzanzeigelämpchen (grün) (POWER)
 Leuchtet bei eingeschalteter Netzversorgung.
2. Fehleranzeigelämpchen (rot) (ERROR)
 Leuchtet, wenn das Papier aufgebraucht ist oder ein Fehler im Druckmechanismus oder in der Kommunikations auftritt.

<Fehleranzeigen>

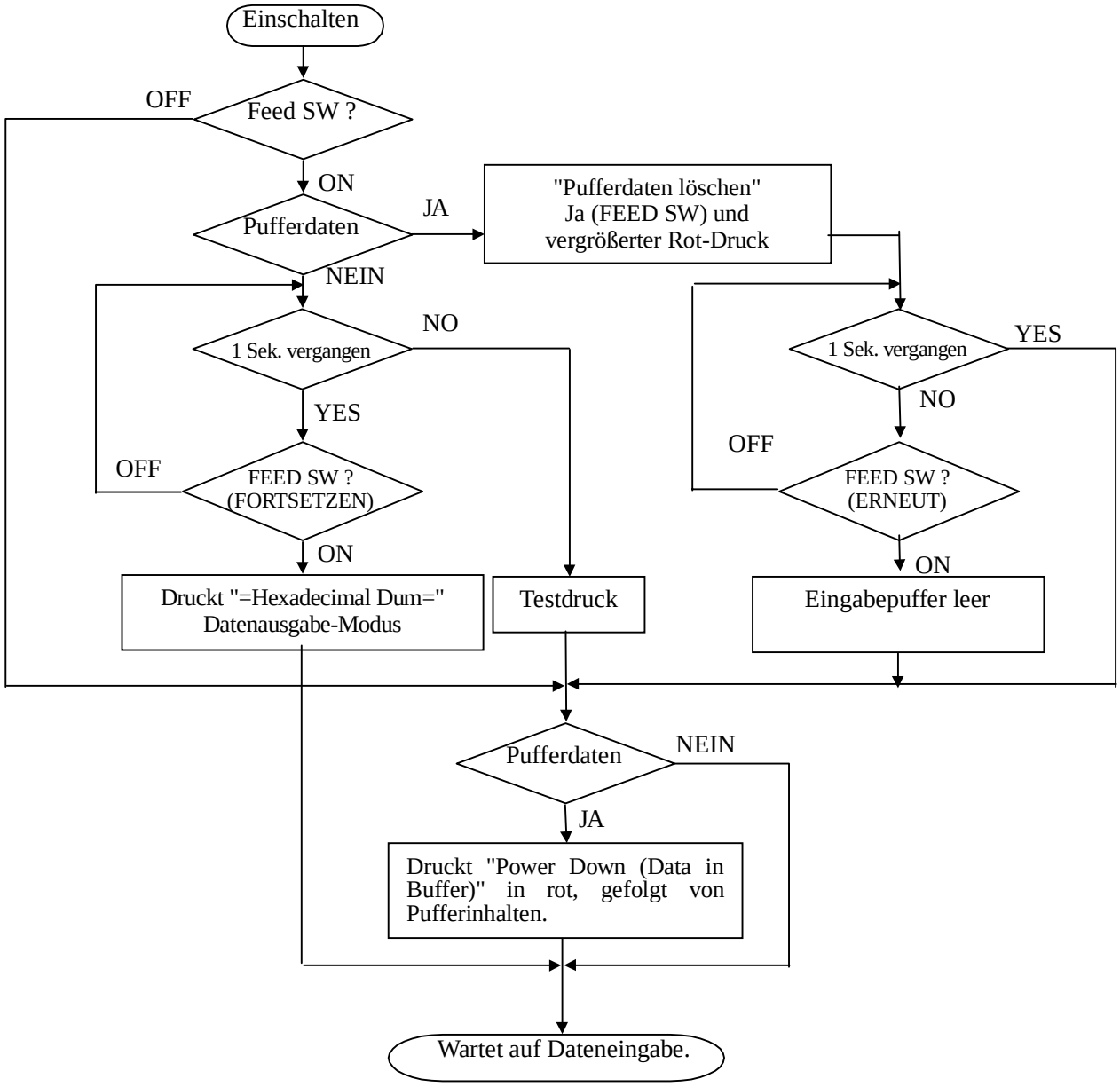
- Papierende: Wenn sich das Papier dem Ende nähert, erkennt ein Sensor, der sich am Papierweg in der Nähe des Druckkopfes befindet, das Papierende und schaltet das LED-Fehleranzeigelämpchen ein. Durch Einschieben des Papiers in den Papierweg wird das Papier eingezogen.
- Druckmechanismusfehler:
 Wenn der Druckmechanismus aufgrund eines Papierstaus usw. anormal geladen ist, leuchtet das LED-Fehleranzeigelämpchen auf, und der Druckbetrieb stoppt.

3. FEED-Taste
 Durch Drücken der FEED-Taste wird das Papier kurzzeitig um jeweils eine Zeile vorgeschoben; bei anhaltendem Drücken der Taste wird das Papier fortlaufend vorgeschoben.

4. FEED-Taste und Netzschalter
 Zum Einschalten der Selbstdruckfunktion die FEED-Taste gedrückt halten und dabei gleichzeitig den Drucker einschalten.



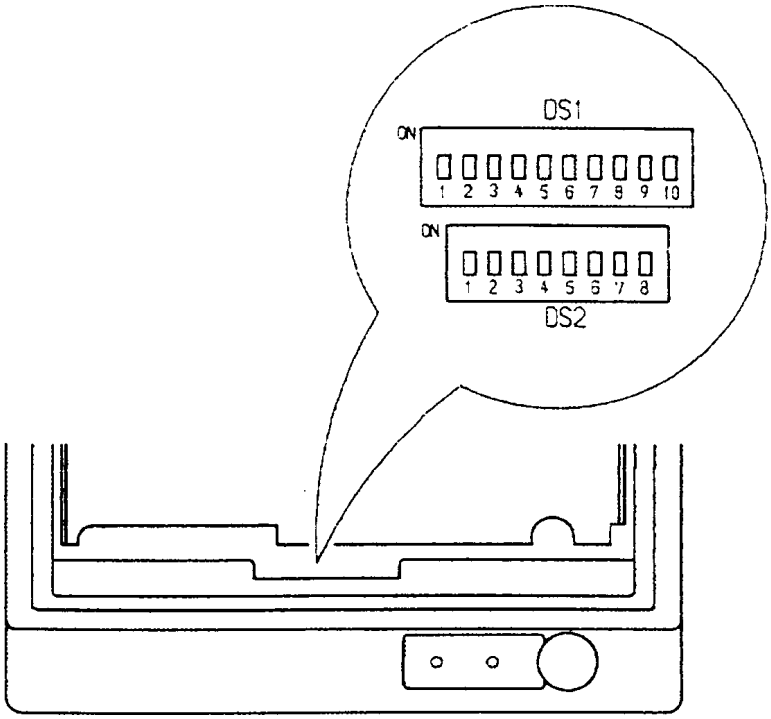
4.9 Betriebsfluß beim Einschalten



5. DIP-SCHALTER-EINSTELLUNG

5.1 Lage der DIP-Schalter

(1) Betriebsstrom ausschalten.
(2) Ein Kassettenband entfernen. Die DIP-Schalter liegen, wie in der Abbildung gezeigt. (Nur DS1 für Parallel-Schnittstelle vorhanden.)



5.2 DIP-Schalter-Einstellungen

1) DIP-Schalter 1

No.	Funktion	ON	OFF	Bei Auslieferung ab Werk
DS1-1	Automatische Schneideinheit	Ja	Nein	AUS
DS1-2	Internationale Zeichen	Siehe Tabelle unten		AUS *2
DS1-3	〃			AUS *2
DS1-4	〃			AUS *2
DS1-5	Verwendetes Papier	2P	1P	AUS
DS1-6	CR-Modus	Siehe Tabelle unten		AUS
DS1-7	Stellen	42 Stellen	40 Stellen	ON
DS1-8	Puffergröße	6 kB	256 Byte	ON
DS1-9	Betriebsmodus	Siehe Tabelle unten		AUS *3
DS1-10	〃			AUS *3

*1, *3 : Je nach Typ.
*2 : Je nach Bestimmungsort.

Internationale Zeichenwahl

No. / Land	DS1-2	DS1-3	DS1-4
U.S.A.	ON	ON	ON
Frankreich	OFF	ON	ON
Deutschland	ON	OFF	ON
Großbritannien	OFF	OFF	ON
Dänemark	ON	ON	OFF
Schweden	OFF	ON	OFF
Italien	ON	OFF	OFF
Japan	OFF	OFF	OFF

Zeichencode-Wahl

ESC/POS-Modus	CBM-Modus	Star-Modus
Code 437	CBM (international)	Star (international)
Code 850	Code 850	Code 850
〃	〃	〃
〃	〃	〃
〃	〃	〃
〃	〃	〃
〃	〃	〃
Katakana	CBM (japanisch)	Star (japanisch)

Siehe internationale Zeichencode-Tabelle und Schriftzeichen-Tabelle

CR-Modus(DS1-6)

Modus	OFF	ON
CBM	CR+LF	CR
STAR	CR+LF	Ignoriert
ESC/POS	CR+LF	CR

Betriebsmodus DS1-9 DS1-10

CBM	OFF	OFF
ESC/POS	ON	OFF
STAR	OFF	ON
STAR	ON	ON

2) DIP-Schalter 2

No.	Funktion	ON	OFF	Werksseitige Einstellung
DS2-1	Bitlänge	8 Bit	7 Bit	ON
DS2-2	Parität	Nein	Ja	ON
DS2-3	Ungerade/Gerade	Ungerade	Gerade	ON
DS2-4	Kommunikationsmodus	DTR/DSR	XON/XOFF	ON
DS2-5	Baudrate	Siehe Tabelle unten		ON
DS2-6	″			ON
DS2-7	″			OFF
DS2-8	Nicht verwendet	–	–	OFF

Baudrate

Baudrate	DS2-5	DS2-6	DS2-7
150	OFF	OFF	OFF
300	OFF	OFF	ON
600	OFF	ON	OFF
1200	OFF	ON	ON
2400	ON	OFF	OFF
4800	ON	OFF	ON
9600	ON	ON	OFF
19200	ON	ON	ON

- Der DIP-Schalter 2 wird nur für die serielle Schnittstelle verwendet.

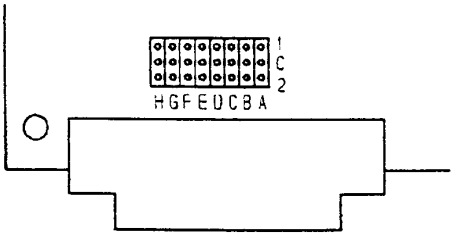
(**Hinweis**) Die Einstellung des verwendeten Papiers ändert einfach den Treiberimpuls für den Druckkopf; sie bedeutet nicht, daß 2-Seiten-Papier nicht für die Einstellung 1P verfügbar ist. Das gleiche gilt, wenn 1-Seiten-Papier für die Einstellung 2P verwendet wird.

6. EINSTELLUNG DER VORWAHL-JUMPERSTECKER

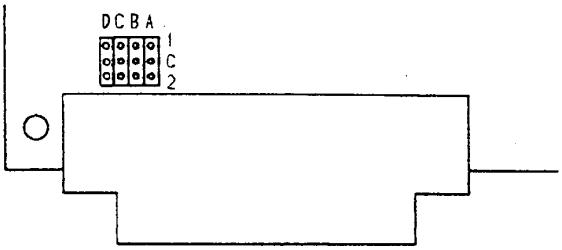
6.1 Lage der Vorwahl-Jumperstecker

(1) Betriebsstrom ausschalten.
(2) Ein Kassettenband entfernen.
(3) Die Oberabdeckung entfernen. Der Vorwahl-Jumperstecker liegt, wie in der Abbildung unten gezeigt.

Serielle Schnittstelle



Parallele Schnittstelle



6.2 Vorwahl-Jumperstecker-Tabelle

Seriell

Modus / Lage	CBM	STAR	ESC/POS
SCA	1-C *	2-C	2-C
SCB	1-C *	1-C *	2-C
SCC	1-C	2-C	*
SCD	1-C	2-C	*
SCE	1-C *	2-C	1-C *
SCF	1-C *	2-C	1-C *
SCG	1-C *	2-C	1-C *
SCH	1-C	2-C *	2-C *

* = Offen

1-C* = 1-C oder offen

2-C* = 2-C oder offen

Parallel

Modus / Lage	CBM	STAR	ESC/POS
SCA	1-C *	1-C	2-C *
SCB	1-C	1-C	2-C
SCC	1-C *	1-C *	2-C
SCD	1-C	1-C	2-C *

* = Offen

1-C* = 1-C oder offen

2-C* = 2-C oder offen

7. METHODE FÜR MODUSEINSTELLUNG

Dieser Drucker hat die Modi CBM, STAR und ESC/POS. Jeder gewünschte Modus kann gewählt und nach Bedarf eingestellt werden.

(1) Einstellmethode
- Siehe 5. DIP-SCHALTER-EINSTELLUNG
- Unter bezug auf die Einstellungen der DIP-Schalter-Segmente 1-9 und 1-10 und die der Vorwahl-Jumperstecker jeden Modus einstellen.

12. WARTUNG UND DIENST

Bitte wenden Sie sich an die folgenden Stellen für weitergehende Informationen.

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